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MUCOUS COLITIS *

WALTER A. BASTEDO, M.D.

NEW YORK

Mucous colitis is a malady about the character of which there is much difference of opinion and about the etiology of which there is no agreement. Therefore it can be defined merely as "a chronic condition in which the bowel forms abnormal mucus in large quantities." Not in all cases but in the severer ones it is accompanied by intestinal toxemia and various nervous or psychic phenomena, and to these the difficulties of its proper comprehension may be largely attributed. Though usually associated with constipation, it may exist with diarrhea. At times it may produce abdominal pain or soreness or even intense colic, but the disease in severe form is often present without colic. It occurs in both males and females of all ages, and, though a common cause of invalidism, would seem to be frequently overlooked.

DIAGNOSIS

Neither constipation nor intestinal putrefaction nor abdominal pain nor a psychoneurosis tells of itself that mucous colitis is present, and there is no diagnostic criterion for mucous colitis other than the mucus. Therefore the diagnosis rests on (1) the patient's history of passing slimy stools, or the characteristic thick, very tenacious plaques, sheets, scablike membranes, strings or ropes of mucus, which, though observed, patients commonly do not mention unless interrogated; (2) the finding of the characteristic mucus in a submitted stool; (3) the bringing in by the patient of strings of mucus, often in the belief that these strings are worms; (4) the detection of the characteristic mucus after a colon irrigation or enema or even after a test dose of castor oil, or (5), and least important, the observation through a sigmoidoscope of a dry or granular mucous membrane in the upper rectum to which are clinging the thick tenacious pieces of mucus. It is to be borne in mind that mucus is the normal secretion of any mucous membrane, and therefore a little mucus clinging to a constipated stool or a fair amount of evidently freshly secreted mucus following a cathartic or obtained by enema or irrigation does not establish the diagnosis.

These patients seek help, not because of the colitis but for abdominal pain, persistent constipation or occasionally diarrhea, persistent headache, lack of physical energy, a falling off in business efficiency, mental depression or complete nervous breakdown. If mucous colitis is sought for only when there is colic, the majority of cases will be missed; if it is sought for in every patient with persistent lassitude, persistent headache or a psychoneurosis, it will often be discovered.

PATHOLOGY

Space does not permit a detailed consideration of the pathologic changes. They are not consistent. The colon sometimes shows very slight alteration, but in some of the colons removed at operation the mucous membrane of the cecum and ascending colon has revealed extensive areas of inflammation, and the whole wall of this part of the intestine has shown atony, dilatation and poor nutrition. These changes may also be seen in the lower ileum, a region which Herter showed to be not infrequently the site of intestinal putrefaction. That mucous colitis is not strictly a colon disease may be further inferred from the fact that a patient of mine, in whom the colon was completely removed by Sir Arbuthnot Lane down to the lower part of the sigmoid flexure, has all the symptoms of mucous colitis even to the colic, and passes mucous strings as long as 18 inches (46 cm.).

BACTERIOLOGY

For many years I have sought with much trouble for etiologic bacteria, and in the treatment have used autogenous and stock vaccines in large quantities. But I have not found any flora that seem particularly associated with the disease, and years of experience have convinced me that autogenous vaccines do not confer any specific benefits.

SYMPTOMS

Blood.—Though Mummery reports blood in the stool in 60 per cent of his cases, in thousands of examinations I have found it present only occasionally, and then usually as a result of hemorrhoids. Therefore if, by the aid of the sigmoidoscope, persistent blood should be found to come from above the hemorrhoid region, a more serious lesion, e. g., cancer, should be looked for.

Fever.—Though it seems possible for patients with mucous colitis to have a raised temperature this is normally not present, and indeed, because of depressed vitality, the temperature may be slightly subnormal. Fever usually means either a superimposed bowel infection or an inflammation elsewhere, as in the tonsils, pharynx, nasal sinuses or other infective foci.

Abdominal Pain.—This is present in most patients at some period of the disease. It ranges from merely a little soreness to paroxysms of the most severe colic. A large proportion of the patients never have colic, but it is not uncommon to find the intestine in an irritable state so that moderate cramps are easily produced by purgative drugs. These patients feel pain keenly, and persistent, localized, apparently very acute pain has caused many futile operations for cholecystitis, appendicitis and pelvic trouble.

* Read before the International Assembly of the Interstate Post-Graduate Medical Association of North America, Atlanta, Ga., Oct. 15, 1928.

Intestinal Toxemia.—Recognizing that the importance of this factor is a controversial subject, I am emphatically of the opinion that the headaches, the neurotic manifestations and the condition of mental and physical fatigability may in many instances be associated directly with a chronic toxemia caused by the absorption of food or bacterial poisons formed in the bowel, or possibly of the dead bacteria themselves; and it is probable not only that the abnormal bowel condition of mucous colitis favors bacterial proteolysis but also that the injured mucous membrane permits unusual absorption of deleterious material. This toxemia is generally of the putrefactive variety frequently recognized in stools or irrigation returns by an odor suggesting something dead or fetid. When one sees the dirty gray, brown or blackish membranes, and strings or blobs of mucus with an albuminous, rotten or dead-fish odor obtained by colon irrigations, one does not wonder that these patients give evidence of being poisoned. In some cases the stool is of the saccharobutyric fermenting type with a sour or pickle-like odor, in which event there may be uncomfortable flatulence but very little toxicity. If the stools when passed or the irrigation returns smell of the cesspool or of vinegar pickles, there is something decidedly wrong.

Nervous or Psychic Manifestations.—Many of these patients have a variety of nervous symptoms ranging from a simple introspective suggestibility to severe nervous breakdown, or display such mental instability of the elative-depressive type as to suggest the borderline of insanity. A striking characteristic of the disease is fatigability, mental and physical, the patients being readily brought to a state of exhaustion by serious reading, by visitors, by responsibilities or by physical exertion. In fact, they may feel fatigued even though they do nothing. An exacerbation of the colitis and its associated phenomena may be precipitated through aggravation of the fatigable state by an attack of influenza or other infectious disease, by an operation, by the assumption of business or social responsibilities that are beyond the patient's powers, or by worry, as over money matters, a wayward child, a husband who drinks, a nagging wife or a skeleton in the closet. It is characteristic that these patients feel pain keenly, exaggerate all symptoms, and in their daily affairs regularly make mountains out of mole-hills.

Such patients truly have a psychoneurosis and should be treated for it; but if underlying the psychoneurosis there is a bowel disorder, neglect of such a condition means that they will not get well. The classification of the patient as "neurasthenic" renders the outlook hopeless, for that regularly ends the physician's investigative interest in the case.

THEORY

What is the relation of the bowel trouble to the nervous system? Among neurologists it is customary to consider that neurasthenia or a psychoneurosis requires two conditions for its production; namely, an underlying mental deficiency and a provocative factor, one of the most pronounced of which is fatigue. Yet perhaps the underlying mental deficiency is not such an absolute requirement, for Féré states that "fatigue often provokes ideas of negation, persecution and disparagement," and, according to Dubois, "exaggerated fatigue may induce neurasthenic states in the best balanced individual." Therefore without discussing the theory that a mental deficiency or imbalance belongs to mucous colitis, but agreeing that fatigue is a great provocative factor in the psychoneuroses, it is my opinion that mucous colitis acts as such a provocative factor because it is an important producer of fatigue, either of itself or through the production of toxic substances.

On the other hand, as mucous colitis may induce fatigue or fatigability, so may fatigue from other causes increase the colitis and its associated symptoms.

There is a theory extant that mucous colitis is a vagotonic disease and is therefore curable by atropine. But after thorough trial I can say that I have never seen atropine do any good at all, except to overcome the cramp tendency and to relieve colic, and atropine is the drug *par excellence* in all patients with these symptoms whether they have mucous colitis or not. The mucous colitis itself and its more common accompaniments are not lessened by atropine.

COMPLICATIONS

Mucous colitis is at times an accompaniment of surgical conditions that will render all medical treatment futile. Such conditions are purulent tonsils, a diseased gallbladder or appendix, an anal fistula, a retroverted uterus or a torn and lax perineum. It is also a manifestation in cancer of the bowel, hyperplastic tuberculosis of the bowel, polyposis, diverticulosis, chronic intestinal amebiasis and the chronic dysenteries in general. Other disadvantageous conditions are pyorrhea alveolaris and infections of nasal sinuses and the pelvis. Patients with severe mucous colitis do not stand surgery well and, before one submits them to operation, attempts should be made to get them into as good condition as possible. Too often they have already had sundry gynecologic and abdominal operations which have left them in a worse state than before.

TREATMENT

Mucous colitis is chronic, is a cause of ill health, inefficiency and unhappiness, and has no specific treatment; therefore its therapeutics strikingly illustrates the principle of treating the patient, the whole patient, rather than just a disease. The cure requires a very long time, and relapses are common. I am wont to tell my patients that they are fortunate if they reach a practical cure within a year. In any case every factor that may contribute to fatigue or to lowered vitality must be combated; that is, infected nasal sinuses should be treated, purulent tonsils removed, a flabby abdomen supported by a belt or a uterine retroversion corrected.

I aim to give a wholesome mixed diet, but at the outset it must be of rather bland type, excluding such gastro-intestinal irritants as whole wheat bread, fruits, salads, coarse vegetables, coffee, tea and alcohol. If necessary the diet must be modified to suit conditions in the stomach, such as hyperacidity, achylia and atony. Theoretically a bland diet may be constipating, but the coarse, indigestible and irritating foods that constitute roughage will do more harm to these injured colons than any mild laxative drug. But restricted diets must be watched closely, and later there may be a gradual transition to a coarser type with sufficient vegetable, salad and fruit. In using restricted diets it is well to recall that a fundamental element in the production of appetite and bowel movements is vitamin B. In all cases the diet should be ample, for these patients are prone to undereat because of a fear that this, that or the other food will do harm; and so long as undereating is continued, cathartics will have to be continued. These patients are ripe subjects for food fads. If the reason for their not eating is lack of appetite, I give appropriate bitters before meals or other gastric treatment,

and arrange the diet as much as possible to satisfy the palate so that the patient will eat it.

If intestinal putrefactive toxemia is persistent it may require for a time the complete abolition from the diet of the highly putrefactive protein foods, such as flesh, eggs, peas and beans. My experience suggests that chicken is more putrefactive than the other plain meat foods, and beans and peas are more putrefactive when dried than when green. If the patients are good milk drinkers they should take plenty of milk, which furnishes protein in a less putrefactive form and has other desirable properties. Indeed, some of the patients may advantageously be placed on a strict milk diet for a short time. Such milk should be raw, not pasteurized. If they cannot take fresh milk the patients may be able to take one of the dried milks or malted milk, or one of the acid milks, though I do not consider lactic acid milks to have any specific virtues because of the particular sour milk germs that they contain. In patients with achylia gastrica, acid milks are usually well borne; in those with hyperacidity, they are contraindicated. After the return to meat and eggs in the diet it is a good plan to have a lactofarinaceous day once or twice a week—a day when the diet is confined to such foods as milk, cereal, bread, potato, and fruit juices or jellies.

To dislodge the mucus that adheres so tightly to the bowel wall and to cleanse out the cesspool materials, I give colon irrigations and an occasional dose of castor oil, mild mercurous chloride and salts, salts alone, a compound cathartic pill, or compound licorice powder. Occasionally to clean out mucus one may switch to small daily doses of magnesium sulphate or a saline water for a time, keeping the dosage low enough to avoid liquid stools, but I find that as a rule treatment with salts proves only temporary in its value and rarely leads to permanent benefit. I seldom permit the use of the stronger purges, for they are irritative and prone to be followed by a day or two of bowel exhaustion. These patients too readily acquire the purge habit.

In some cases mucous colitis may be caused, or at least continued, by overcatharsis. For example, one woman was taking twelve compound rhubarb pills a day, besides other cathartics, and castor oil two or three times a week and at least one enema a day. She had many liquid stools and formed mucus in vast quantities. I gained her cooperation and she agreed not to take any drugs except one teaspoonful of a proprietary mixture of agar and cascara twice a day and a powder with two glasses of water on arising. The powder, the character of which she did not know, consisted of 15 grains (1 Gm.) of magnesium sulphate, powdered so that she would not recognize it and flavored with peppermint. After a few days it caused diarrhea and she is now cured. I do not agree at all, however, with those who assert that overcatharsis is the usual cause of mucous colitis.

Colon irrigations are given once or twice a week or just occasionally, depending on the severity of the condition. My method is to use several gallons of plain warm water by the two-tube process; as the inlet tube a catheter number 24 French and as the outlet tube a velvet eye rectal tube number 30 French are employed. The bag is hung low to give about 1½ feet of pressure and the water is run in very slowly, usually about an hour being allowed for an irrigation. For the first gallon the patient is placed on the left side and for the rest of the irrigation on the back. It is desirable for the bowels to move before the irrigation, and if they have not done so already they are cleansed with an enema and then a short time is allowed for the defecation reflexes to quiet down. I never give irrigations to move the bowels but for the purpose of getting out something from higher up which is not brought out by defecation; and just as a stomach is lavaged with water until it is clean, so I try to lavage the colon until it is clean.

True, one can fill the colon with 2 quarts of water, have it pass to the cecum in two or three minutes as shown by the x-rays, and have it reexpelled. But does this suffice? As a rule it does not. In mucous colitis the thick tenacious mucus may require much soaking before it can be liberated from the mucous membrane to which it clings so tightly. At autopsy I have found it a difficult matter to remove this mucus even with forceps and under a strong stream of water. Moreover, the putrefactive intestinal area as shown by Herter is sufficiently often the lower part of the small intestine, and it has been my experience in numerous cases that, after several gallons of colon washing with the patient quite relaxed, rotten putrefying stuff is suddenly obtained as if the ileocolic sphincter had just opened and let down the ileac contents.

Sometimes an irrigation is unsuccessful in obtaining the mucus, and in such cases a brisk cathartic the same night may result in the passage of large quantities of mucus apparently softened by the water of the irrigation, and sometimes by foul putrefactive material, presumably from the small intestine and completely missed by the 6 or 8 gallons of water employed in the irrigation. Cleansing diseased bowels is not an easy task, and the work of Alvarez and Freedlander would show that sidetracking is a common trick of the intestine. To normal people they gave beads with the food and found that many days and even weeks elapsed before the last beads were passed in the stools. Some of the subjects apparently normal in every way took a week to pass as much as 70 per cent of the beads. One constipated person did not pass the last of the beads until the fortieth day.

As a rule I do not approve of medicated fluids for irrigations, preferring plain water to solutions of saline, sodium bicarbonate, sulphonated bitumen (contained in the National Formulary) or other antiseptics. Nor do I approve of the introduction into the colon of foreign germs.

I do not like to leave the subject of irrigations without a warning against their abuse. They have become an extensively commercialized fad, and one frequently hears of daily irrigations. Irrigations require as much checking up as other forms of treatment, and physicians should now and then see and smell the irrigation returns instead of depending on a nurse's report, which is too often perfunctory. If irrigations do not suffice, one may at times produce an excellent effect on a resistant bowel by the slow rectal injection at bedtime of from one-half to one pint of warm olive, cottonseed or corn oil, to be retained all night.

Painful hemorrhoids and fissures are bad complications, as they favor constipation and prevent the use of irrigations, enemas or the occasional dose of castor oil. They may be treated by the nightly instillation into the rectum, by means of a soft rubber ear syringe, of 60 cc. of warm oil to be retained over night, or by the insertion of a 5 grain ethyl aminobenzoate suppository the first thing in the morning. In addition it may be necessary to give liquid petrolatum by mouth to keep the feces of soft consistency.

CONSTIPATION

Constipation is to be given careful thought, but only a meager consideration of its treatment can be given here. For softening agents the two that I value are liquid petrolatum and magnesia, preferably magnesia magma, but these agents have little if any actual stimulating effect on the bowels. Therefore in the really refractory cases of constipation, while the softening agents may have some use, I resort to the tonic laxatives cascara, senna, rhubarb and aloin, which can be taken for a long time without increase of dosage and, unlike the drastic purges, do not produce inflammatory reactions in the bowel and kidneys. If they cause cramps, belladonna may be added; if they still cause cramps, they should be abandoned. A combined bulk-producing agent and tonic laxative that has given much satisfaction is the cascara-agar preparation.

Regarding the use of laxatives to cure constipation I have several rules:

Rule 1. Employ drastics rarely if at all. Chronic constipation is never cured by compound jalap powder or compound cathartic pills.

Rule 2. Have the medicine taken every day and at the same time of day, and preferably for the best tonic effect two or three times a day. P. r. n. administration never cures constipation. Because of associated gastric conditions one of my favorite prescriptions is: sodium bicarbonate, 2 drachms; fluidextract of cascara, 2 drachms, and rhubarb and soda mixture to make 3 ounces, these proportions to be varied according to circumstances. A dose of 2 drachms with a glass of water one hour before lunch and dinner and at bedtime should be taken. It is an awkward time to take medicine but it is the best time for this antacid mixture. Alkalis after meals may induce a compensatory highly acid secretion.

Rule 3. Do not allow the feces to be liquid for any great length of time. A liquid consistency is most favorable to fermentation and putrefaction; in fact, the stools may be nothing but sewage, a condition in which stools should not be at the time of their passage.

Rule 4. Do not allow the feces to continue highly offensive. The nose is all the apparatus required to detect this.

Rule 5. Note the character of the stools. From time to time have the patient bring a full stool in a pint glass fruit jar. Patients think more of a physician who examines stools, and stools tell the physician a great deal about the patient. Moreover, they need not cause any trouble to the physician, for the only laboratory apparatus required is an eye and a nose. These will furnish more valuable information than the laboratory.

Diet and many other factors enter into the treatment of chronic constipation, but space does not permit their consideration.

PSYCHASTHENIA

Physicians must deal with the psychoneurotic patient with the utmost kindness and consideration but also with firmness. As these patients take everything quite seriously and readily misconstrue what one says, the wise physician avoids making dogmatic statements or pointed remarks, even facetiously, about various foods, remedial measures or methods of rival physicians.

I instruct the patient never to overdo, never to do anything too much; i. e., never to do anything physically, mentally or emotionally to the point of fatigue. I try to arrange occupation, recreation and rest in proper proportions without allowing the patients to coddle themselves, and I do not permit extra responsibilities, such as club or church committee work, or teaching Sunday school. I do not allow breakfast in bed, for I believe that loafing in bed after a long night's rest is devitalizing and that, as the morning air is the best air and the most stimulating, this time of day had better be spent up and preferably outdoors; but I insist on a complete period of rest and relaxation each day, usually after the midday meal, and on early retirement. During the rest period a hot water bag, an electric pad or a hot compress may be applied to the abdomen. After the bowels, diet and daily habits are under good regulation, I may advise a change of surroundings to get the patient away from oversolicitous or nagging friends or from the wear and tear of home or business. A visit to one of the spas may furnish rest and recreation amid pleasant surroundings and away from business, friends and telephone calls, with the advantages of a regular life, simple diet, early hours, hydrotherapy and perhaps the daily ingestion of mildly laxative waters. In any case the patient should drink freely of water.

If at the outset patients are too sick to carry out this plan, it is seldom possible to get them well in home surroundings; and in such event they are placed for a time in the hospital where they will be under personal supervision, where one can talk with them, encourage them and watch them, and where one can keep the family away as much as seems wise. Here they are given cold spinal douches, cold rubbings up and down the spine, cold packs, massage, hot applications to the abdomen during a part of the day or other forms of physical therapeutics, as well as care of the diet and bowels and plenty of rest. It is not advisable to have them at the hospital without a personal nurse, for disinterested companionship is a great advantage in the treatment; and I do not permit patients to return home until they are well relaxed. If one's local hospital is not satisfactory for this class of patient, one can send the patient to some well conducted sanatorium where fads do not prevail. When the patient returns the home treatment will have to be resumed, for all that spa or sanatorium treatment can do is to give the patient a fresh start.

For the nervousness and insomnia I may give about 20 grains (1.3 Gm.) of a bromide after the morning and evening meals; I dislike phenobarbital for these patients as it depresses both their vitality and their spirits. A good cocktail during especially nervous periods is a teaspoonful of a mixture of equal parts of ammoniated tincture of valerian, compound tincture of lavender and spirit of chloroform. Strychnine is usually contraindicated, as the patients are already in a state of overtone.

CONCLUSION

I believe that in a large number of cases of mucous colitis a practical cure is possible, but usually only after persistent treatment for a long time. I have seen many patients in serious nervous states, who, after the cure of the bowel trouble, have ceased to be more than normally nervous. To treat these patients as disagreeable neurasthenics and to neglect the bowel is a great mistake; but for cure it is necessary to continue treating the bowel for a long time after the nervousness and toxemia have subsided. Undoubtedly continued or recurrent severity of the symptoms is often the result of neglect on the part of either physician or patient. The height of absurdity was reached by a speaker at one of the meetings of the Pennsylvania State Medical Association, when he said: "The prognosis is absolutely hopeless, the treatment is nil, and the sole prophylaxis would have been to sterilize the grandfather."

Many of the psychoneurotic patients with mucous colitis are misfits, or victims of circumstances or of an overweening and misdirected ambition; yet a great deal can be done to increase their usefulness to themselves and others. They come to us with their complaints because we are physicians; but with such patients our

familiarity with the materia medica or our skill with knives and other implements will be of little avail unless we are possessed also of human understanding and sympathy. A knowledge of the family affairs and kindly discussion of them will sometimes prove of a great deal more value than anything that can be done as the result of the most elaborate laboratory tests.

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LUXATION OF THE COSTOVERTEBRAL JOINTS

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AND
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LOS ANGELES

Dislocations of the costovertebral joints are surprisingly rare. Stimson, who had not seen one himself, found only ten recorded instances, all of which antedated the discovery of the roentgen rays. A review of the Index Catalogue of the Library of the Surgeon General's office, the *Index Medicus*, the *Quarterly Cumulative Index Medicus* and various surgeries added only two other cases. The fact that no cases have been reported since the discovery of the x-rays aroused our suspicion as to the rarity of the condition, but inquiry among a number of the principal orthopedic surgeons and roentgenologists of California revealed only one who thought he had seen a dislocated rib. It would seem patent, therefore, that the condition is indeed rare.

The following instance occurred in practice during the present year:

I. W. F., a man, aged 55, was riding on the left rear seat of a car when it overturned on its left side. The patient remained in the seated position, landing on his left shoulder, and the two other occupants of the rear seat were piled on his right side. The left clavicle was fractured at the juncture of the outer and middle thirds, and he also was immediately conscious of a numbness and paralysis of the fourth and fifth fingers of the left hand and of difficulty in moving his head.

The patient appeared round shouldered and rather emphysematous, and there was an obvious fracture of the left clavicle. There was marked tenderness in the posterior triangle of the neck and also just below the sternoclavicular joint on the left side. An area of anesthesia, analgesia and paresis was observed around the inner condyle of the humerus and extending on both surfaces of the forearm along the unlar border. On the hand it was sharply limited to the ring and little finger, and was most marked peripherally.

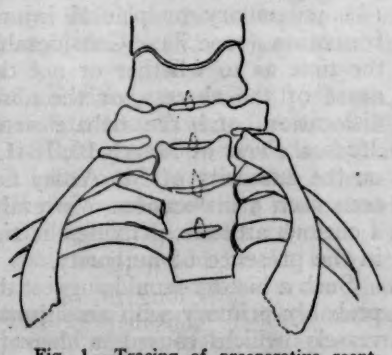

Fig. 1.—Tracing of preoperative roentgenogram showing dislocation of first left rib.

The diagnosis was: fractured clavicle (left); ? fractured first rib (left), and ? fractured transverse process of the first dorsal vertebra (left).

The fractured clavicle was reduced and put up on a clavicular cross. Roentgenograms taken the following morning showed fracture of the left clavicle at its outer and middle third in good position (fig. 1). There was no fracture of the first rib, the first dorsal vertebra, or its transverse process. The first rib, however, was rotated downward with its head as a pivot, so that it occupied a plane between the normal level of the ribs and the sagittal plane. In other words, there was a downward subluxation of the articulation between the first rib and the transverse process, and an upward subluxation of the head of the rib on the body of the vertebra. Contrary to our hopes the neurologic signs increased rather than decreased, and it was determined to perform an open operation.

An oblique incision was made across the neck above the clavicle, the platysma was divided, the brachial plexus and the subclavian artery were identified, and the first rib was found. The lower part of the brachial plexus was drawn forward by the dislocation, so that the subclavian artery and plexus lay in the same oblique plane, a position very different from that observed in a great number of ramisections in this area, in which the members of the plexus lie in nearly a vertical plane with the brachial artery lying forward of this plane.

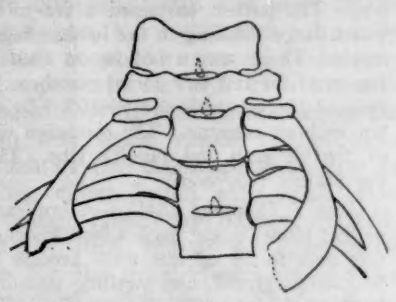

Fig. 2.—Tracing of postoperative roentgenogram showing reduction of first left rib.

A heavy hook was put around the rib, which was then drawn strongly upward and outward and which, with a loud snap, returned to its normal relationship. The brachial plexus and subclavian artery thereupon resumed their normal positions. The wound was closed and dressed.

The patient on recovering from the anesthetic stated that the fourth and fifth fingers were normal in sensation, and a test confirmed this observation. Traction on the plexus at the time of operation caused a slight paresthesia of the thumb and index finger which completely cleared in the course of two weeks. Subsequent roentgenograms showed the restitution of the rib to its normal location (fig. 2).

The other dislocations are recorded in a widely scattered literature over a period of nearly two centuries. It would seem profitable, therefore, to give a summary of each.

CASE 1 (Buttett,[1] 1753).—A man, aged 55, was run over by a wagon. Examination showed that pressure anteriorly over the sixth rib on the right side caused movement of the head of the same rib when palpated posteriorly. These movements were accompanied by a distinctly audible click, which was also evident on movements of the trunk.

CASE 2 (Hankel,[2] 1834).—A young man fell into a ditch, and the fall caused severe injury accompanied by great choking, paralysis and anesthesia of both legs and severe swelling in the region of the twelfth dorsal vertebra. The patient died at the end of fifteen days. Autopsy showed a dislocation of the eleventh rib on the left side, crushing of the tenth and eleventh vertebra with the intervening cartilage, and fracture of both twelfth ribs and the transverse process of the eleventh dorsal vertebra (side not given).

CASE 3 (Alcock,[3] 1838).—G. C., a man, sustained a gunshot wound in the back from which he died. Autopsy showed that a bullet entered lateral to the spinous process, penetrating the chest at the eleventh rib and fracturing it between its neck and angle. The bullet lodged in the angle of the last dorsal vertebra. The head of the twelfth rib was dislocated on the body of the succeeding vertebra; there was swelling of the liver and kidneys and a rupture of the dura and cord without laceration of the spinal nerves.

CASE 4.—R. P., a man, sustained several severe injuries when a house roof collapsed, causing death. Autopsy showed a fracture of the spinous processes of the sixth and seventh dorsal vertebrae, a complete fracture and separation of the body of the sixth dorsal vertebra with transection of the spinal cord by one of the fragments, and fracture of the sixth, seventh and eighth ribs on both sides with dislocation of the heads of two of them

1. Buttett: Académie de chirurgie, 1753, quoted by Stimson: A Practical Treatise on Fractures and Dislocations, New York, 1917, p. 597.
2. Hankel: Gaz. méd. de Paris **2**: 187, 1834.
3. Alcock, R.: Observations on Complicated Surgical Injuries, London M. Gaz. **24**: 586, 1838-1839.

from the articulations with the transverse process (which two ribs are not specified).

CASE 5 (Boudet,[4] 1839).—A man, aged 32, fell 90 feet, fracturing the skull and sustaining injuries in other parts of the body that resulted in instant death. Autopsy showed that the fourth rib on the left side was completely dislocated from the vertebra, injuring the pleura. This dislocation was accompanied by a fracture of the transverse process of the same vertebra.

CASE 6 (Kennedy,[5] 1841).—A man, aged 20, was injured by a fall from a scaffold, which collapsed and subsequently fell on him. The patient sustained a fracture of the skull and there was a large swelling in the lumbar region, together with ecchymosis. There was a hollow on each side of the spine in the region of the last two dorsal vertebrae. Pressure on the anterior ends of the eleventh and twelfth ribs caused distinct movement but without crepitus. The condition was diagnosed as luxation of the eleventh and twelfth ribs. These were bandaged and the patient recovered.

CASE 7 (Dunne,[6] 1841).—A boy, aged 11 years, received a violent blow on the back which knocked him unconscious. He was able to be up and walk around but on the third day he became paralyzed, and swelling developed in the region of the head of the eleventh and twelfth ribs. These ribs were also more movable than normal. An abscess developed and death occurred on the fourteenth day. Autopsy showed an abscess along the last four ribs on the left side, complete dislocation forward of the tenth rib, and a partial dislocation of the eleventh rib, with rupture of their ligaments.

CASE 8 (Finucane,[7] 1841).—A girl, aged 18 years, was ill in bed at the time of a fire during which the rafters and roof fell on her, causing death. Autopsy showed a fracture of the skull and an evident depression over the heads of the last two ribs. There was a complete dislocation of the last two ribs on the left side, the ligaments were ruptured, and the heads of the ribs easily moved inward when the anterior ends of these bones were grasped.

CASE 9 (West,[8] 1841).—A boy, aged 17 years, fell 40 or 50 feet, his back striking on a protruding root. There was an indentation over the right eleventh and twelfth ribs near the vertebrae. Pressure on these caused severe pain. The ribs were bandaged in position and the patient recovered.

CASE 10 (Cooper,[9] 1851).—A man, thrown from a horse across a gate, was treated for fractured ribs. Autopsy several years later showed the head of the seventh rib thrown on the front part of the corresponding vertebra and there ankylosed.

CASE 11 (Watts,[10] 1861).—A man, aged 59, caught but not crushed by a falling derrick, had a severe pain in the neck and shoulders and was unable to turn his head without pain. There was a paresthesia of the legs. Death occurred in a few days. Autopsy showed a fractured sternum in the region of the manubrium with displacement; the lower costal cartilage on the right was loosened from the sternum; the first ten ribs on both sides were fractured near the vertebrae; in addition, the fifth, eighth, ninth and tenth ribs were broken at their angles, puncturing the pleura, and the heads of the eighth and ninth ribs on the right side were dislocated and pushed forward on the side of the vertebrae.

CASE 12 (Quint,[11] 1888).—A boy, aged 3 years, fell face downward under the wheels of a passing carriage. The right shoulder was presented to the wheel, which passed on to the shoulder and along the lateral part of the thorax. The patient had hemoptysis, emphysema and fracture of the ribs. Death occurred in forty-eight hours. Autopsy showed fracture of the second, fourth and fifth ribs at their angle. The first rib did not show any fracture, but the head was completely detached from the first dorsal vertebra and was found luxated upward. The anterior ligaments remained, so that the interosseous ligaments were destroyed.

4. Boudet, M.: Société anatomique **14**: 104, 1839.
5. Kennedy, cited by Dunne (footnote 6).
6. Dunne: Dublin M. Press **5**; abstr. Gaz. méd. de Paris **9**: 409, 1841.
7. Finucane: Surgical Society of Ireland, Dublin M. Press **5**: 145, 1841.
8. West, J. F.: Original Report of Medical and Surgical Practice, Dublin M. Press **5**: 229, 1841.
9. Cooper, Astley: A Treatise on Dislocations and Fractures of the Joints, Philadelphia, 1851.
10. Watts, Robert: Extensive Fracture of the Ribs: Dislocation of the Heads of Two Ribs, Am. M. Times **3**: 55, 1861.
11. Quint, M.: Luxation costo-vertébral d'origine traumatique, Bull. méd. du nord **27**: 182, 1888.

COMMENT

These reports describe dislocations of the first, fourth, sixth, seventh, eighth, ninth, tenth, eleventh and twelfth ribs. Nearly one half of these dislocations involve the eleventh and twelfth ribs, which suggests that the lack of anterior cartilaginous attachments of these ribs is a marked predisposing cause for their luxation.

It is also apparent that dislocations are possible in either one or both of the parts of the joint that go to make up the articulation of the costal head, and dislocations may be of three types; thus we have described in this series total dislocations of the head of the rib forward, on the bodies of the vertebra, either with or without fracture of the accompanying transverse process, and downward as in case 3. It would also seem from case 11, described by Quint, and from the case that is here presented that in the first rib it is possible to have what might be termed a rotary dislocation pivoting either in the joint between the rib and the body of the vertebra as in our case, or the articulation between the rib and the transverse process. Whether or not such a dislocation can occur in other ribs we are unable to say, but it would seem that dislocation of the first rib would much more likely be a rotary dislocation than a forward dislocation because of the very protected position in which it lies.

Diagnosis of such an injury is always possible with x-rays but the following clinical points are of significance: (1) depression over the juxtacapital area of any rib; (2) ability to move the posterior portion of a rib by pressure on and traction over its anterior end, and (3) the development of paresthesia or anesthesia in a metameric distribution. This sign is of most significance in relation to the first rib, where the head and neck of the rib lie between the roots of the eighth cervical and first dorsal nerves. Traction on these roots gives a typical ulnar distribution of symptoms. Stiffness of the neck in dislocations of the first rib results from its important muscular attachments.

Complications of two characters are recorded: (1) pulmonary or pleural injuries, and (2) abscess formation (case 7). Considerable discussion raged at the time as to whether or not the dislocation was the cause of the abscess, or the abscess the cause of the dislocation, and the debate recorded in the *Dublin Medical Press* of March 10, 1841, seems to have hinged on the authority of Sir Astley Cooper, who had never seen such a dislocation. Several of the surgeons took a curious attitude, denying the right of private opinion in the presence of authority.

Such a history would suggest that the dislocation was probably primary with an injury to the accompanying vessels which caused a hematoma with secondary abscess formation. Consequently[1] vascular injuries must be thought of as a possible complication.

Prognosis.—It is to be noted further that 75 per cent of the recognized cases of dislocation of the rib terminated fatally, but in no instance could death be attributed primarily to the dislocation, for all of these dislocations were accompanied by a severe trauma that in and of itself would probably have resulted fatally.

Treatment.—Each case of dislocation of the rib must be met and handled according to its individual circumstances. Bandaging or strapping seemed satisfactory in two uncomplicated dislocations of lower ribs. In

connection with dislocations of the first rib the dissection that was practiced in this particular instance appealed to us as being exceedingly satisfactory because of the facts that all important structures are within the field of vision, the whole extent of the rib can be easily felt by the examining finger, and such traction as is necessary on the rib may be obtained with considerable leverage because of the exposed length of the rib. Because of the intimate relationship between the rib, nerve roots, blood vessels and pleura, it is not a surgical procedure that should be undertaken lightly. Dislocations of the heads of other ribs would probably best be attacked through a posterior approach and an extrapleural dissection.

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THE DOG A RESERVOIR OF THE BROAD TAPEWORM *

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During the last two years the plerocercoids of the broad tapeworm, *Diphyllobothrium latum* (L. 1758) have been found in fishes from one locality in Michigan, another in Minnesota, and the lake regions of Ontario, Manitoba and Alberta. It has been pointed out [1] that nearly 80 per cent of the wall-eyes, *Stizostedeon vitreum* Mitch., and of the great northern pikes, *Esox lucius* L., which are consumed in the United States are imported from the large lakes in the three provinces of Canada that have been mentioned. Fish of these species from these lakes are infested with plerocercoids which, when fed to "clean" dogs, have produced typical tapeworms of the species *D. latum*. Although the number of fish examined from each lake is not sufficient to allow safe generalization, the present data show that the fishes of Lake Nipigon, Ontario, carry the heaviest infestation. It has been possible to account for the original and present source of infestation in every lake on the basis of the racial origins of the population living around it and in the nearby towns from which the sewage is discharged into the lake. These people came largely from those nationalities among which the broad tapeworm is common in Europe; viz., the Scandinavian, Finnish, Russian and German.

From his study of conditions around Ely, Minn., Magath [2] found that fish infested with larvae of *D. latum* occur only in the lakes near the town and that fish from more distant lakes are free from this infestation. He argued that if the broad tapeworm had existed on this continent in wild animals before settlement by European races, the conditions should be the reverse. He used this argument in an attempt to prove that infested Europeans must have been the original source and are, indeed, the present source of broad tapeworm infestation around Ely, Minn. No doubt this conclusion is correct for Ely and its vicinity. I found similar conditions in the copper mining region of the upper peninsula of Michigan [3] and have interpreted them in the same manner as did Magath.

I intend to show, however, that although the immigrants from northern Europe were responsible for the establishment of the broad tapeworm in the Canadian provinces cited, there are now other important factors operating to maintain the infestation. In upper Michigan and probably also in Minnesota, man is the only important fish eater, but in the forested lake regions of Canada the principal diet of dogs is fish. In September, during a brief stay in the region between Lake of the Woods and Lake Nipigon, north and west of the western part of Lake Superior, I found that fish in the smaller lakes far distant from towns were moderately infested with broad tapeworm larvae. This immediately suggested the possibility of wild carnivores as the source of infestation and again raised the problem whether the white man or the tapeworm was first in North America. This region dotted with small lakes is very sparsely populated, chiefly by Indians or halfbreeds and a few white men, mostly of English or French descent, who for the greater part make their living by trapping, hunting and fishing. The presence of these racial groups cannot explain the existence of broad tapeworm larvae in the fish. This area is heavily forested and wherever water or railroad facilities are available, lumbering operations were begun from twenty to fifty years ago and are still continuing. Large areas are now covered by second growth timber. For these operations, in the past and even today, according to the reports of lumbering concerns whose agents I interviewed, Scandinavians and Finns have been employed almost exclusively. Many of these employes are recent immigrants. When the English language is once mastered, other occupations open up to them and their places are taken by more recent immigrants. In this way people most likely to harbor tapeworms brought from Europe frequently get their first jobs in the lumbering camps. These immigrants working in the lumbering camps, then, must have constituted the original source of the broad tapeworm eggs, which eventually resulted in a slight to moderate infestation of the fish in the smaller lakes.

As the cutting operations are completed, the lumber camps move on to new territory. Yet the larvae of *D. latum* are found in the fish of these lakes from twenty to fifty years after the original lumbering operations were completed. It is therefore certain that a source of reinfestation must exist. This can hardly be man, because of the very sparse population, and because the Indians, halfbreeds and white persons in these regions cook their fish as well as any other people on this continent. This information was gained by interviewing both Indians and white men. Health officers, Indian agents and physicians alike agree that the broad tapeworm is rare in man in the cut-over areas. Moreover, the people here do not eat either of the infested species of fish as long as lake trout, *Cristovomer n. namaycush* Walbaum, which are abundant in most of the lakes, may be had. Finally, the modern lumber camps have central kitchens where fish is cooked thoroughly. Much of this is salted sea fish, because such fish can be more economically used than local fish, which would require their time to catch. Thus lumbermen cannot become infested with broad tapeworm by eating in the camps. Since in some of the smaller lakes from 50 to 75 per cent of the great northern pikes and wall-eyes which I examined were infested, it does not seem probable that the eating of fish by wild carnivores and their subsequent infestation can account for this heavy infestation in the fish. However, it is entirely probable

* From the Zoological Laboratory of the University of Michigan.
* This is one of a series of investigations carried on under grants 96 and 131 awarded to Profs. George R. La Rue and A. S. Warthin by the Committee on Scientific Research of the American Medical Association.

1. Vergeer, Teunis: New Sources of Broad Tapeworm Infestations: Report of Fourteenth Native Case, J. A. M. A. **91**: 396-397 (Aug. 11) 1928.
2. Magath, T. B.: Experimental Studies on Diphyllobothrium Latum, Minnesota Med. **10**: 614-616 (Oct.) 1927.
3. Vergeer, Teunis: Diphyllobothrium Latum (Linn. 1758), the Broad Tapeworm of Man, J. A. M. A. **90**: 673-678 (March 3) 1928.

that they may contribute to this condition. This probability, however, still needs confirmation.[4]

In an attempt to discover an additional source of reinfestation, I found that while the Indians and white men are fishing for trout, numbers of wall-eyes and great northern pikes are caught. These are not discarded but are taken to shore and fed raw to the dogs. Almost every man has at least one dog, and many have several. The husky and other large breeds of dogs are common and are used as draft animals in winter when the lakes and streams are frozen. Practically the only food these dogs ever get consists of those species of fish that were found to be infested with the larvae of *D. latum*. Numerous experiments [5] have demonstrated that dogs in general are capable of harboring from five to eight specimens of adult broad tapeworms. Nicholson [6] reports as many as nineteen from one dog. It must be an easy matter for dogs of these regions to get their quota of *D. latum*. The people generally live on the shores of the lakes, because water constitutes the highway for travel and the land is covered by forests through which there are no roads and but few trails. Their dogs spend the greater part of their existence on the beaches and in canoes in summer, and on the ice in winter. With each storm, while the lakes are open, the beaches are washed clean and all fecal matter containing tapeworm eggs gets into the lakes. The spring thaw allows all fecal material collected on the ice during the winter to settle into the lakes. Whether winter freezing is harmful to the eggs of the broad tapeworm is not known. It is obvious, however, that if there are only a few fish-eating dogs on the shore of a lake, the life cycle can easily repeat itself. Because Indians own many dogs, it would seem that lakes near Indian reservations should become the most heavily infested, and this I found to be true. This may also account for the heavy infestation in Lake Nipigon, which is relatively small as compared with the other lakes of commercial importance. At least three large Indian reservations for the Ojibway Indian tribe are situated on the shores and islands of Lake Nipigon, with another large reservation on the Nipigon river. The Indians on these reserves belong to the same tribe as those which I visited and they live as far north. It is probable also that they have many dogs and that these dogs constitute a large source of broad tapeworm eggs. The white people in the nearby towns are engaged in fishing. They must have introduced the tapeworm, but the dogs may now supply the greater part of the tapeworm eggs which result in the heavy infestation.

Since dogs are bought and sold and are used for draft animals and companions, they often get far from home and from the lake on which they first lived and thus they may spread the infestation to other lakes.

The conditions found in the territory visited are probably representative of Canadian lake regions where lumbering operations have been carried on or where in some other manner man has given rise to an infestation of the fish. As lumbering progresses northward and invades the rather inaccessible places, it may be expected that the broad tapeworm will be taken along by the lumbermen, and thus it may also be expected that the fish in all northern lakes will become infested, with the exception of a few in the prairie country, which includes the southern third of Manitoba, the southern half of Saskatchewan and the southeastern quarter of Alberta.

At present it is impossible to control the feeding of raw fish to dogs by Indians. Only patient and persistent education can accomplish this. All Indian agents and teachers in Indian schools in lake regions both in Canada and in the United States should teach the Indians that fish, even for dogs, should be cooked well to prevent the disease in dog, fish and man. The cooking of fish does not involve any expense for the Indians because fuel is abundant and free, but it involves some work. Thorough methods of cooking should be continued and all other sanitary methods observed on the reservations as well as in the lumbering camps. Lumbermen and their families in lumber camps should be inspected for tapeworm and treated if infested. Above all, the governments should demand that immigrants pass an examination for broad tapeworm (and other intestinal parasites), and proper treatment should be given in case of infestation.

SUMMARY

Broad tapeworm is common in the wall-eyes and great northern pikes of the large Canadian lakes. The fish in Lake Nipigon apparently are the most heavily infested. The adult worms have been brought over from Europe by infested Scandinavian, Finnish and Russian immigrants.

In some small lakes in lumbered forest regions, from 50 to 75 per cent of the wall-eyes and great northern pikes are infested.

The lumbering concerns employ Scandinavians and Finns almost exclusively; they cause the original infestation of fish in the small lakes, and as lumbering operations advance they move on.

Indians and others feed their dogs on raw wall-eyes and great northern pike; the dogs become an important reservoir of broad tapeworm and reinfest the fish in the lakes. Dogs are capable of harboring from five to nineteen broad tapeworms.

Fish in lakes near Indian reservations are most heavily infested. Three large Indian reservations are located on the shores and islands of Lake Nipigon with another reservation on the Nipigon river, which probably accounts for the heavy infestation in the Nipigon fish.

Indian agents and teachers should be instructed to teach the Indians the necessity of cooking fish even for dogs for the sake of dog, fish and man.

Lumbermen and their families in lumber camps should be inspected for tapeworm and treated if infested.

The importation of adult tapeworms by immigration should be prevented.

4. Since this paper went to press, I have obtained experimental evidence which proves that bears are excellent hosts of D. latum, Canad. M. A. J. **19**: 692-694 (Dec.) 1928.

5. Vergeer, Teunis (footnotes 1 and 3); Canadian Fish: A Source of Broad Tapeworm, J. A. M. A. **90**: 1687-1688 (May 26) 1928; An Important Source of Broad Tapeworm in America, Science **63**: 14-15 (July) 1928.

6. Nicholson, D.: Fish Tapeworm, Canad. M. A. J. **19**: 25-33 (July) 1928.

Absence of Thyroid.—It is often stated or assumed that the thyroid gland is absent in sporadic cretinism; but palpation, which is the only method of investigation that can be employed during life, is not reliable, and even failure to find the gland at an autopsy is not infallible. Serial sections of the cervical tissues have shown that traces of ectopic thyroid tissue may be found when the gland itself is missing. This fact, and the not infrequent existence of accessory thyroids, make it difficult to be sure that, in any particular case, there is absolutely no thyroid tissue capable of functioning. Though total absence of the gland has been demonstrated in a few cases by the serial-section method (aplasia of the thyroid; thyreo-aplasia), in many sporadic cases some kind of a thyroid gland is certainly present, though it shows evident signs of maldevelopment or of atrophic degeneration (thyreohypoplasia).—Knaggs, R. L.: Cretinism, *Brit. J. Surg.*, January, 1929.

INTERPRETATION OF ROENTGENOGRAMS IN TRACHEOBRONCHIAL GLAND TUBERCULOSIS

THE NEED OF STANDARDIZATION

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This paper is based on roentgenographic examinations of 109 children between the ages of 7 and 12 years at the Prendergast Preventorium of the Boston Tuberculosis Association. Each child is a "contact case," one that has had intimate and prolonged exposure to an active sputum-positive case of tuberculosis; each child has a positive skin tuberculin reaction, and in each case other foci of infection such as bad teeth, infected tonsils and adenoids which might have been the source of signs and symptoms had been removed.

The roentgenograms were taken by Dr. Henry D. Chadwick of the Massachusetts Department of Health, who is directing the so-called Ten-Year Health Program for underweight children and those who have been exposed to tuberculosis, which is now being carried on in this state. Dr. Chadwick made a careful study of these films, grouping them as showing (1) normal chests, (2) suspicious chests and (3) bronchotracheal or hilum tuberculosis. A few poor roentgenograms were ruled out. These films and the results of his study he submitted to us with the suggestion that we ask a few other roentgenologists to make independent examinations of the films and to compare the results. This we have done, while in addition each of us (J. B. H. and E. F.) has studied these films carefully and recorded the results, as did Dr. Chadwick, as normal, suspicious and positive. Here then we have roentgenograms of 109 contact cases of tuberculosis with definite proved infection as shown by the positive Pirquet reaction. The films have been studied and the observations independently recorded by (1) three competent roentgenologists, Drs. Ralph D. Leonard, L. B. Morrison and Max Ritvo of Boston; (2) a pediatrician (E. F.), and (3) two physicians who can qualify as specialists in tuberculosis of fairly long experience and who are likewise well versed in the interpretation of chest roentgenograms (Drs. Chadwick and J. B. H.).

TABLE 1.—*Results of Study of One Hundred and Nine Roentgenograms*

Doctors	Not Considered	Normal	Suspicious	Positive
Leonard	0	79	21	9
Morrison	1	80	19	9
Ritvo	2	46	51	10
E. F.	3	47	53	6
Chadwick	10	61	20	18
J. B. H.	0	82	24	3

In addition we have the records of the history and physical observations of each of the children.

As we surmised would be the case, there was a great discrepancy in the interpretation of the roentgenograms. This discrepancy was partly but by no means entirely explained by the fact that whereas Dr. Chadwick considered calcification of any degree as definite evidence of tuberculosis and called all plates showing any calcified glands whatever "positive," Drs. Leonard, Morrison and J. B. H. considered a certain amount of calcification as a perfectly normal phenomenon and one to be frequently found in roentgenograms of normal chests. The results are given in table 1.

These figures, certainly striking, speak for themselves. That three of the six observers who studied these films should find practically the same number normal, seventy-nine, eighty and eighty-two, with very few positive cases, nine, nine and three, while two others, one a roentgenologist and one a pediatrician, should find only forty-six and forty-seven normal, is sufficient evidence of the wide difference that still exists not only of opinion but also of standards in the interpretation of roentgenograms of the hilum. Again four of us, Drs. Leonard and Morrison, roentgenologists, and Drs. Chadwick and J. B. H., clinicians, found approximately the same number of "suspicious" cases, twenty-one, nineteen, twenty and twenty-four, while Drs. Ritvo, roentgenologist, and E. F., pediatrician, again agreed with more than double the number of suspects, fifty-one and fifty-three. Surely we should come nearer to an agreement than this!

There were twenty-nine cases in all that from the roentgenographic point of view were considered to be positive ones of tracheobronchial gland tuberculosis by at least one of the six physicians mentioned. A study of these shows equally striking discrepancies (table 2).

TABLE 2.—*Analysis of Twenty-Nine Positive Cases*

Considered positive by all six observers	0
Considered positive by five observers	1
Considered positive by four observers	1
Considered positive by three observers	6
Considered positive by two observers	6
Considered positive by one observer	15

In plain English table 2 simply means that the six physicians, each of whom was amply qualified by experience and training to act as one of a jury to pass on these films, did not come to a unanimous opinion in any single case; five out of the six agreed on one case and four agreed on only one case. Can there be more striking evidence of the need of formulating some set of standards by means of which to differentiate the normal and abnormal hilum from the roentgenogram? If not, we may as well discard roentgenographic evidence altogether or else look on it purely as an interesting formality.

When the clinical observations in those cases classed as "positive" are compared with the roentgenograms the same variance of opinion is again found:

Group 1: Considered positive by five out of the six observers. One case, a child, aged 12 years, was in excellent general condition on admission, being 6 pounds (3 Kg.) overweight, with such symptoms as frequent colds and undue fatigue entirely absent. The physical examination was negative. The first roentgenogram made in 1923 showed, as did the last one in 1927, a hilum much enlarged with much evidence of calcification of the nodes and elsewhere. The only difference between the first and the last roentgenograms, taken four years apart, was the marked decrease in the size of the hilum tissues and the increase in the amount of calcification in the last one taken. Clinically, the child presents, as it has from the beginning, a case not only of quiescent but also of healed hilum tuberculosis. If the source of contact, a father who is in an advanced stage of pulmonary tuberculosis and living at home, can be removed, preventorium treatment cannot be considered very urgent.

Group 2: Considered positive by four out of the six observers. One case, a child, aged 8 years, of normal weight and in generally good condition, did not show any pathologic signs on physical examination. The roentgenologic report in 1925 was considered to be within normal limits. There had been long and intimate contact with a sick mother. At the time of the present roentgenogram the child tired easily and had constant colds and an occasional rise in temperature. Clinically, we consider her as presenting an active case of hilum tuberculosis.

Group 3: Considered positive by three out of six observers. Six cases. Of the cases in this group none were considered definitely positive from the clinical point of view; three were suggestive and three were apparently inactive, healed cases of hilum tuberculosis or else did not show any signs or symptoms whatever. Each child had been in long and intimate contact with an active and open case of pulmonary tuberculosis.

Group 4: Considered positive by two out of six observers. Six cases. Of the six children, five were clinically either healed or entirely normal, and in only one was the condition clinically active. Contact in each was intimate and prolonged with a positive Pirquet reaction in each instance.

Group 5: Considered positive by one of the six observers. Fifteen cases. Of these fifteen children, only one at the time of this examination was considered to have active hilum tuberculosis; three were in the borderline or suspicious class; and the rest, eleven, in the clinically negative, the healed or the healing stage.

A further analysis of forty of the patients whose roentgenograms were unanimously pronounced normal showed that four of that number on account of their general poor condition, underweight, easy fatigue and susceptibility to frequent colds were considered as having active bronchial gland tuberculosis and as being in need of preventorium treatment. Thus it is seen that the one patient who according to the roentgenogram was pronounced positive by all six observers was from the clinical point of view distinctly normal, while on the other hand four patients reported as having normal chests according to the roentgenogram were clinically positive.

It was of interest in the study of these roentgenograms to compare the different films taken of the same patients at yearly intervals. Practically all of them along with a general improvement in their weight and nutrition also showed a distinct improvement in the roentgenographic observations. The hilum shadows were invariably decreased in size and calcification was more distinct.

CONCLUSIONS

Various conclusions might well be drawn from the results of this study, some of a distinctly radical nature. It would not be fair to do so, however. For instance, one might say that if we physicians can come no nearer to agreement than is shown here we might well save our patients the money and ourselves the time and omit altogether the roentgen study of the chest in suspected hilum tuberculosis. But we know that the roentgenogram does give a certain amount of useful information. We feel, however, that the following conclusions are justified:

1. No diagnosis of hilum tuberculosis should be made on roentgenographic evidence alone.

2. The presence of enlarged tracheobronchial glands, as shown by roentgenograms, in the absence of clinical symptoms, does not necessarily mean active hilum tuberculosis or indeed hilum tuberculosis of any kind.

3. Calcification of the nodes, or any calcification as shown by the roentgenogram, particularly when previous films did not show any calcification, is an indication that one is dealing with a healing or healed process. In such cases, in the absence of clinical signs and symptoms, institutional treatment is not needed.

4. Repeated roentgenographic examinations are of great value in studying the progress of each individual case. Absorption of the hilum shadow and increased calcification are indications that healing is progressing favorably.

5. As far as the selection of children for preventoriums and summer camps is concerned, definite and prolonged contact with an open case of pulmonary tuberculosis and a positive Pirquet reaction should be the chief and practically the only requirements. Special attention should of course be given to underweight and poorly nourished children.

11 Marlborough Street.

BLOOD GROUP CLASSIFICATIONS USED IN HOSPITALS IN THE UNITED STATES AND CANADA

FINAL REPORT *

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As stated in the preliminary report,[1] it seemed advisable at this time to gather information concerning blood group classifications in use in the chief hospitals in the United States and Canada. In addition to the Jansky and Moss classifications, a third classification is now being advocated. This classification is variously referred to as the National Research Council classification, the International classification, and the AB, A, B, O classification, but is probably better known by its author's name, the "new" Landsteiner classification.[2]

The purpose of those advocating the adoption of the "new" Landsteiner classification was "to make an end of the confusion regarding the numbering of the blood groups." A similar attempt was made by special committees [3] in 1921 in order to secure universal adoption of the Jansky classification. The first attempt to gain this end was not preceded by a survey of the classifications in use in the hospitals and of the attitude of the hospitals toward the proposed change. If a survey of the situation has been made by those attempting to introduce the "new" Landsteiner classification into this country, the results of it are not available in any publication. Before attempting to introduce a new classification or terminology, it is a mistake to fail to obtain and disseminate the opinion of the hospitals where blood grouping had and still has its first and foremost application. In order that this information might be generally available, I deemed it extremely advisable

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1. Kennedy, J. A.: Blood Group Classifications Used in Hospitals in the United States and Canada; Preliminary Report, J. A. M. A. **90**: 1323-1324 (April 21) 1928.

2. New Designations for Blood Groups According to Iso-Agglutinins, Current Comment, J. A. M. A. **88**: 1421-1422 (April 30) 1927. New York State Association of Public Health Laboratories, Abstracts of Papers and Summaries of Discussions, Twelfth Annual Meeting, May 21, 1928.

3. Isohemagglutination: Recommendation that the Jansky Classification be Adopted for Universal Use, Miscellany, J. A. M. A. **76**: 130 (Jan. 8) 1921.

after considerable thought and counsel, to obtain the information at this time.

It was thought that data sufficiently representative of the prevailing blood group classifications used in this country could be obtained from the general hospitals [4] that were considered by the American Medical Association to be "in a position to furnish acceptable internships for medical graduates." Accordingly, March 1, 1928, the following questionnaire and letter were mailed to the 580 general hospitals at that time approved for internships:

QUESTIONNAIRE

Name of Institution.....Date.....

Location .....

1. What blood group classification is now being used?
2. When was this classification instituted?
3. Had any other system been used previously?
4. If a change has been made, was such a change influenced by the committee's recommendation that the Jansky classification be adopted in the United States (THE JOURNAL A. M. A., Jan. 8, 1921, p. 130) or by the more recent agitation for designating the groups as AB, A, B, O?
5. Are you in favor of a compromise system, such as the AB, A, B, O instead of either the Moss or Jansky classification?
6. Do you think that this compromise system, if recommended, will likewise lead to further complications?

LETTER ACCOMPANYING QUESTIONNAIRE

May I ask your cooperation in filling out the enclosed questionnaire? It is my desire to obtain statistics regarding the number of hospitals at present using the Jansky and Moss classification for blood grouping and also whether or not any have already adopted the so-called Landsteiner classification of AB, A, B and O. This letter is being sent to the 580 hospitals approved for internship by the American Medical Association and it is my intention to publish a tabular statement of these replies so that this information may be readily accessible. There is no doubt but that having two classifications, Moss and Jansky, causes some confusion; but whether or not the addition of a third one would clear up the situation or add to it is a moot question. If either the Moss or Jansky classification, or the new AB, A, B, O classification, is in use in an overwhelmingly large number of the representative hospitals in the United States it would be interesting to know this fact. Whichever classification is most prevalent would, to my mind, be the logical one for adoption.

Your early answer to this questionnaire is earnestly requested and your courtesy in this matter will be appreciated.

After the publication of the preliminary report, a follow-up letter was sent to all hospitals failing to reply by the middle of May. For this purpose the list of 611 hospitals as revised to April 1, 1928, was used.

TABLE 1.—*Correlations of Blood Classifications*

Jansky	"New" Landsteiner	Moss	"New" Landsteiner
I	O	I	AB
II	A	II	A
III	B	III	B
IV	AB	IV	O

Any returns that had already been received from hospitals not approved at this later date were not counted. All of these hospitals [4] have now been circularized and this final report is based on the returns from the revised list.

It might be well at this point to correlate the Jansky and Moss classifications with the "new" Landsteiner classification (table 1).

Of the 611 hospitals [4] circularized, 552, or 90 per cent, responded to the questionnaire. The 611 hospitals contain a total of 167,058 beds. About 94 per cent of these beds are represented by the 552 hospitals replying. It might not be out of place at this point to thank the hospital authorities for their cooperation in answering and returning the questionnaire. The response was far beyond my expectations and fully justified the undertaking. Furthermore, justification is doubly assured by the unexpectedly large returns, which will be fairly representative of the country as a whole.

The results as indicated in the preliminary report,[1] which was based on the returns from 375 hospitals out of 580, were practically identical with those obtained in this, the final report, which is based on returns from 552 hospitals out of 611.

Table 2 contains a tabulation by states of (1) the blood group classifications in use prior to the special committee's recommendation [3] in 1921 that the Jansky classification be adopted; (2) the blood group classifications in use prior to the recent agitation for the "new" Landsteiner classification; (3) the blood group classifications in use at present, and (4) the attitude of the hospitals toward the "new" Landsteiner classification.

In 1920, there were 469 general hospitals approved for internships.[5] Of these, 363, or 78 per cent, were among the hospitals which were approved at this date and which replied to the questionnaire. It will be seen by referring to table 2 that prior to 1921 about 90 per cent of the hospitals which were doing blood grouping at that time were using the Moss classification. Of the thirty-one hospitals employing the Jansky classification nineteen, or more than 60 per cent, were located in New York, New Jersey and Pennsylvania—chiefly metropolitan New York and Philadelphia. The other twelve hospitals employing the Jansky classification were scattered as follows: Connecticut, two; Iowa, two; Maine, one; Massachusetts, two; Missouri, one; Oregon, one; Washington, one; West Virginia, one, and Wisconsin, one.

Approximately five years after this recommendation, one would expect to find the Jansky classification predominating. It is found, however, that in those hospitals doing blood grouping, the use of the Jansky classification had increased to only about 19 per cent whereas the Moss classification was still being used by the majority of hospitals—78 per cent. The recommendation of the special committees, therefore, was but little heeded. Again, the use of the Jansky classification was fairly well centered in New York, New Jersey and Pennsylvania. If, to these three states, there is added the state of Illinois, 50 per cent of the hospitals using this classification will be accounted for; the other 50 per cent were fairly well distributed throughout the other states. Attention should be called to the fact that the U. S. Army and U. S. Navy hospitals are nearly all included as using the Jansky classification, and each of these hospitals is considered separately. As a matter of fact, they should all be considered as only two hospitals since they are controlled by two administrations in Washington.

The classifications now in use in the hospitals replying to the questionnaire (90 per cent) are shown according to states in table 2. Twenty-seven do not use any classification at all. Most of these do "cross-matching" only. Of the 525 performing blood grouping, ninety-one, or 17 per cent, use the Jansky classification; 392, or 75 per cent, the Moss classification, and sixteen, or 3 per cent, both the Jansky and

4. Hospitals Approved for Internships, reprint from THE JOURNAL, March 24, 1928, p. 911, revised to April 1, 1928.

5. Hospitals Furnishing Acceptable Internships (Revised to Aug. 1, 1920), Section I, General Hospitals, J. A. M. A. 75: 409-414 (Aug. 7) 1920.

the Moss classifications; twenty-six, or less than 5 per cent, have so far adopted the "new" Landsteiner classification.

The attitude of the hospitals toward the "new" Landsteiner classification is shown in the replies to the fifth question, which are also tabulated in table 2. It will be noticed that only 26 per cent at the most are in favor of this so-called compromise system, whereas more than 55 per cent are opposed. As it seems that the Landsteiner classification will not become universal, per cent are opposed and 28 per cent are favorable. It was surprising to find that seven of twelve hospitals reporting, according to both the Jansky and the Moss classifications, were opposed to the "new" Landsteiner classification. Seven of twelve hospitals not using any classification likewise are opposed to the change. There was a total of 478 definite answers to this question. Of these, 304, or 63.6 per cent, were not in favor of the change. Since it is apparent that the "new" Landsteiner classification cannot become universal in

TABLE 2.—*Summary of Answers to Questionnaire*

State	Total Hospitals Approved in 1920	Number of Hospitals Replying	Classification in Use Prior to Recommendation That Jansky Be Adopted: Jansky	Moss	None	Total Hospitals Approved in 1928	Number of Hospitals Replying	Classification in Use Prior to Recent Agitation for "New" Landsteiner Classification: Jansky	Moss	Jansky and Moss	None	Classification in Use at the Present Time: Jansky	Moss	Jansky and Moss	"New" Landsteiner	None	Favor a Compromise System Such as the "New" Landsteiner System: Yes	Yes, If Universal	No	No Answer or Non-committal	Compromise System Will Lead to Further Complications: Yes	No	No Answer or Non-committal
1. Alabama	3	2	..	2	..	3	3	1	1	..	1	1	2	..	..	..	..	..	3	..	3	..	..
2. Arkansas	..	..	..	..	..	1	1	..	1	..	..	..	1	..	..	..	..	..	1	..	1	..	..
3. California	12	12	..	12	..	37	37	4	31	..	2	4	30	..	2*	1	10	3	23	1	26	6	5
4. Colorado	8	8	.	7	1	10	10	1	9	..	..	2	7	..	1	..	4	2	3	1	5	3	2
5. Connecticut	10	8	2	6	..	13	12	4	7	..	1	4	7	..	..	1	1	1	9	1	9	1	2
6. Delaware	2	1	..	..	1	1	1	..	1	..	..	..	1	..	..	..	1	..	..	..	1	..	..
7. District of Columbia	10	8	..	6	2	12	12	4	..	..	1	2	7	..	2†	1	3	2	7	..	8	2	2
8. Florida	2	0	..	..	..	2	2	1	1	..	..	1	1	..	..	..	..	..	2	..	1	..	1
9. Georgia	7	6	..	5	1	8	7	..	5	1	1	..	5	1	..	1	1	..	4	2	5	..	2
10. Illinois	32	29	..	15	5	45	36	5	26	1	4	6	26	1	..	3	4	3	21	8	26	6	4
11. Indiana	7	6	..	5	1	13	11	..	10	..	1	..	9	..	1	1	3	2	3	3	7	..	4
12. Iowa	5	5	2	3	..	12	9	2	6	..	1	2	6	..	..	1	4	..	4	1	5	1	3
13. Kansas	5	4	..	1	3	5	5	..	5	..	..	..	5	..	..	..	1	..	3	1	3	1	1
14. Kentucky	6	2	..	1	1	6	4	1	3	..	..	1	3	..	..	..	..	..	..	4	1	..	3
15. Louisiana	5	4	..	3	1	7	7	..	6	..	1	..	6	..	..	1	..	..	6	1	5	..	2
16. Maine	4	3	1	1	1	3	3	1	2	..	..	1	2	..	..	..	2	..	..	1	1	1	1
17. Maryland	13	12	..	11	1	14	13	..	12	1	..	..	12	..	1‡	..	5	1	6	1	10	2	1
18. Massachusetts	29	23	2	14	7	28	25	3	19	..	3	3	18	..	1	3	4	1	13	7	16	4	5
19. Michigan	11	10	..	10	..	17	17	2	15	..	..	2	15	..	..	..	4	..	9	4	11	3	3
20. Minnesota	13	11	..	9	2	21	18	..	18	..	..	..	18	..	..	..	2	..	13	3	14	3	1
21. Mississippi	3	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22. Missouri	15	12	1	10	1	20	18	2	16	..	..	1	16	..	1	..	6	1	10	1	9	6	3
23. Montana	5	2	..	1	1	2	2	..	2	..	..	..	2	..	..	..	..	..	2	..	2	..	..
24. Nebraska	5	3	..	3	..	7	7	2	5	..	..	2	5	..	..	..	4	1	1	1	3	1	3
25. New Hampshire	1	1	..	1	..	1	1	..	1	..	..	..	1	..	..	..	..	..	1	..	1	..	..
26. New Jersey	33	32	5	14	13	35	34	8	21	1	1	7	24	2	..	1	8	4	20	2	21	6	4
27. New York	73	55	9	33	13	78	75	24	45	3	3	18	43	3	8§	3	27	3	40	5	43	20	12
28. North Carolina	3	1	..	1	..	5	4	1	2	1	..	1	2	1	..	..	..	..	3	1	3	..	1
29. North Dakota	2	2	..	1	1	2	2	..	2	..	..	..	2	..	..	..	..	..	1	1	2	..	..
30. Ohio	19	16	..	12	4	30	26	4	20	2	..	4	19	3	..	..	6	3	13	4	21	3	2
31. Oklahoma	2	2	..	2	..	2	2	..	2	..	..	..	2	..	..	..	2	..	..	..	1	1	..
32. Oregon	2	2	1	..	1	5	5	..	5	..	..	..	5	..	..	..	1	..	4	..	4	1	..
33. Pennsylvania	52	45	5	28	12	71	64	13	47	1	3	14	42	1	4	3	22	1	34	7	38	13	13
34. Rhode Island	5	4	..	3	1	4	4	1	3	..	..	1	3	..	..	..	1	..	3	..	3	1	..
35. South Carolina	3	2	..	2	..	4	4	..	4	..	..	..	3	..	1	..	1	..	3	..	3	1	..
36. Tennessee	10	6	..	3	3	10	7	1	4	1	1	1	4	1	..	1	1	..	6	..	5	1	1
37. Texas	14	8	..	6	2	16	12	4	6	..	2	3	6	..	1†	2	1	1	7	3	5	2	5
38. Utah	4	4	..	3	1	5	5	1	3	1	..	1	3	1	..	..	2	..	3	..	4	1	..
39. Vermont	2	1	..	..	1	1	1	..	1	..	..	..	1	..	..	..	..	..	1	..	1	..	..
40. Virginia	10	5	..	3	2	7	7	1	5	1	..	1	4	1	1‡	..	2	..	5	..	5	1	1
41. Washington	5	4	1	3	..	10	10	3	7	..	..	3	7	..	..	..	2	4	4	..	6	2	2
42. West Virginia	3	2	1	1	..	3	3	..	2	..	1	..	2	..	..	1	..	..	1	2	1	..	2
43. Wisconsin	11	9	1	8	..	19	15	1	12	1	1	1	12	1	..	1	1	..	10	4	11	1	3
44. Canada	..	..	..	..	..	9	8	3	3	..	2	3	2	..	1	2	3	..	1	4	3	2	3
45. Canal Zone	..	..	..	..	..	1	1	1	..	..	..	..	..	..	1	..	1	..	..	..	..	1	..
46. Hawaii	..	..	..	..	..	1	1	..	1	..	..	..	1	..	..	..	1	..	..	..	..	1	..
47. Philippine Islands	1	..	..	..	..	1	..	..	..	..	....	..	..	..	..	..	..	..	..	..	..	..	..
48. China	..	..	..	..	..	1	1	1	..	..	..	1	..	..	..	..	..	..	1	..	1	..	..
Total	467#	363	31	219	83	611	552	100	407	15	30	91	392	16	26	27	141	33	304	74	357	98	97
Per cent	...	77.7	8.5	68.6	22.9	...	90.3	18.1	73.7	2.7	5.4	16.5	71.0	2.9	4.7	4.9	25.5	6.0	55.1	13.4	64.7	17.8	17.6

* One of these is an army hospital.
† Army and navy hospitals.
‡ Jansky, or Moss, or both with "Landsteiner" terminology.
§ One is a Jansky-Landsteiner and one is a Moss-Landsteiner.
# Two hospitals of Arizona not circularized as they are not now approved.

in this country at least, the opposition is raised to 60 per cent, since there should be added to this figure the number of hospitals that were willing to adopt it, if it became universal. It is safe to state that the "new" Landsteiner classification faces at the outset opposition from more than half of the hospitals circularized.

In table 3, there are summarized the classifications used and the attitude of the hospitals using those classifications toward the "new" Landsteiner classification. It will be seen that, of the ninety-one hospitals employing the Jansky classification, more than 69 per cent are opposed to the adoption of this "new" terminology and only about 31 per cent are favorable. Of the hospitals using the Moss classification, about 72 this country, then the number of those hospitals that answered "yes, if universal," to this question can very well be added to the total number of those that are unfavorable, thereby giving a total opposition of 337, or 70.5 per cent. Apparently, the opposition is about equal from those using the Jansky and those using the Moss classification. This opposition is fairly well scattered throughout the country as a whole. In New York City, for example, one third of the hospitals that are using the Jansky classification are not in favor of the so-called compromise system.

Returning to table 2 again, it will be noted that, in answer to the question "Do you think that this compromise system, if recommended, will likewise lead to

further complications?", 357, or 64.7 per cent, replied "yes" and ninety-eight, or 17.8 per cent, "no." There were ninety-seven, or 17.6 per cent, that either failed to answer the question or were noncommittal. In view of what has happened as a result of the committees' recommendation in 1921, more than 78 per cent of those replying specifically to this question are fairly well convinced that the ultimate result of the agitation for this "new" classification will be three classifications in

TABLE 3.—*Attitude of Hospitals Toward "New" Landsteiner Classification*

Classification in Use Prior to Recent Agitation for "New" Landsteiner Classification	"New" Landsteiner Classification								Total No. of Hospitals
	Favor		Yes, if Universal		No		Total Opposition		
	No.	%	No.	%	No.	%	No.	%	
Jansky	28	30.8	9	9.9	54	59.2	63	69.2	91
Moss	103	28.4	23	6.3	237	65.3	260	71.6	363
Jansky and Moss	5	41.7	1	8.3	6	50.0	7	58.3	12
None	5	41.7	0	0.0	7	58.3	7	58.3	12
Total	141	29.5	33	6.9	304	63.6	337	70.5	478
No answer or answer is noncommittal									74
Total number of hospitals replying to questionnaire									552

place of two. The negative replies to this question were in a large number of cases enforced by such phrases as "most decidedly so," "yes—worse and more of it" and "after a year's experience it is still necessary to use the key showing the relation between the two methods." Laborious, indeed, would be any attempt to cite all these reinforced answers and "remarks."

In answer to question 4, "If a change has been made, was such a change influenced by the committees' recommendation that the Jansky classification be adopted in the United States (THE JOURNAL A. M. A., Jan. 8, 1921, p. 130) or by the more recent agitation for designating the groups as AB, A, B, O?" only fifty-one hospitals stated that they were influenced by one or the other of these reasons.

A word might be said here regarding the number of hospitals that started blood grouping after the committees' recommendation[3] that the Jansky classification be adopted. Table 4 shows the classifications adopted by the 155 hospitals which stated definitely that they started blood grouping since 1920. Fourteen

TABLE 4.—*Hospitals That Started Blood Grouping After Committees Recommended That Jansky Classification Be Adopted*

Classification Adopted	Number of Hospitals	Per Cent
Jansky	22	14.2
Moss	121	78.1
Changed from Jansky to Moss	7	4.5
Jansky and Moss	5	3.2
Total	155	100

per cent of these hospitals adopted the Jansky classification whereas 78 per cent adopted the Moss, contrary to the committees' recommendation. An additional 4.5 per cent changed from the Jansky to the Moss classification. Consequently, the percentage of those adopting the Moss classification during this time can be placed at 82.5. This is a rather high percentage and is somewhat indicative of what will probably follow the latest agitation for a third classification.

As there may be a desire to know the relationship of the number of beds to the classification in use, this information has been compiled and correlated and is tabulated as table 5. Since the drift toward the "new" Landsteiner classification is hardly noticeable and the opposition to it is so great, the necessary information for table 5 has been compiled on the basis of the classification in use prior to the recent agitation for this classification. Hospitals that were at this time already using the "new" Landsteiner classification, or using it in conjunction with the previous classification used by them, were thrown back into the classification that they had used before the change was put into force. It will be seen, as indicated in this table, that there is a total of 167,058 beds in the 611 hospitals circularized. The questionnaire was answered by 552 hospitals with a total bed capacity of 156,659, or 93.8 per cent of the total number of beds. Hospitals that employed the Jansky classification had a total bed capacity of 34,516, or 20.7 per cent; hospitals that employed the Moss classification had a total bed capacity of 110,434, or 66.1 per cent; hospitals that employed the Jansky-Moss classification had a total bed capacity of 3,001, or 1.8 per cent, and hospitals that did not employ any classification contained 8,708 beds, or 5.2 per cent. The fifty-nine hospitals that failed to answer the questionnaire contain 10,399 beds, or 6.2 per cent of the total beds. In the 522 hospitals in which blood grouping is performed, slightly less than one fourth of the beds are in hospitals in which the Jansky classification was the official classification and close to three fourths of the beds are in hospitals in which the Moss classification was official.

TABLE 5.—*Correlation of Classification Used with Number of Beds* *

Classification Used	Hospitals		Beds	
	Number	Per Cent	Number	Per Cent
Jansky	100	18.1	34,516	20.7
Moss	407	73.7	110,434	66.1
Jansky and Moss	15	2.7	3,001	1.8
None	30	5.4	8,708	5.2
Total beds in the 552 hospitals			156,659	93.8
Beds in hospitals not answering questionnaire			10,399	6.2
Total beds in the 611 hospitals			167,058	100.0

* Prior to recent agitation for the "new" Landsteiner classification.

COMMENT

There is no need of returning to the 1920-1921 period. However, I wonder why at that time it would not have been much easier to request the small number of hospitals (10 per cent) that were employing the Jansky classification to change to the classification that the majority (90 per cent) of the hospitals doing blood grouping were using at that time. It seems that it would have been a rather easy task to do this; especially is this true since 40 per cent of these hospitals were so scattered that there were only one or two in each state. The other 60 per cent were concentrated in two localities—metropolitan New York and Philadelphia.

As to the recent agitation for a "new" terminology, the so-called compromise system which it was hoped would eliminate both the Jansky and Moss classifications, there is no doubt that in this country at least the ultimate result of this agitation, if continued, will be three classifications. This, of course, is rather distressing and every manner of means should be exerted to prevent such a situation. As already pointed out in this report, this could have been avoided by a survey of the country previous to any attempt to introduce another terminology. One fundamental objection to the acceptance of the "new" Landsteiner classification is that it

commits those using it to a definite agglutinogen content for each of the various groups. The observations of many workers at present lead them to believe that this is not true. In support of this possibility, it is only necessary to cite the masterly work of Guthrie and his co-workers [6]; also that of Coca and Klein,[7] Tebbutt,[8] Landsteiner and Witt,[9] Kline, Ecker and Young,[10] Simson,[11] Jones and Glynn,[12] and Bunker and Meyers.[13] The list is far from complete, but completion of such a list is unnecessary in this report. Let it be said, however, that in citing these references I do not necessarily commit myself to these variations but simply wish to stress a point; namely, that it is still an unsolved problem whether group I can be strictly labeled—and I use the term advisedly—O or AB; group II, A; group III, B, and group IV, AB or O.

Furthermore, capital letters have been used heretofore by various writers to designate the agglutinins. In these cases O represents the so-called universal recipient group and not the so-called universal donor group as it is employed in the "new" Landsteiner classification. Reference need only be made to the work of Guthrie and his co-workers [6] and to the work of Bunker and Meyers,[13] in which O represents the agglutinin formula of group I (Moss) which corresponds to group IV (Jansky). Consequently, in addition to the confusion that will doubtless arise in actual practice, there may arise further confusion in the literature from the two possible interpretations of O and AB. In the reply from one hospital, it was stated that it would lead to further confusion "because one can quickly forget whether A and B refer to agglutinogen or agglutinin." This quotation indicates the state of mind of some of the persons on whom this new system is being urged. From a hospital in the East where the Jansky classification has been used since 1921 comes the following: "For a few months we reported the results by the Landsteiner classification as well as by the Jansky. This made so much confusion for the doctors that we omitted it. While theoretically it may be a more scientific classification, practically, I think the Jansky or Moss method is less confusing. . . ." Needless to say the reply from this hospital to question 5 was "no" and to question 6 "I fear it will."

I have tried many times, without success, to devise a way out of the present difficulty. Each and every attempt has resulted in what might be termed a compromise system that in the end would only add a third classification. The blood groups could be classified on the basis of the agglutinogen formula of the corpuscles or on the basis of the agglutinin formula of the serum. This, as has already been shown, is taking too much for granted. In either case, the first of which has already been attempted by Dr. Landsteiner, the result will not be a compromise but a third classification. To carry such a procedure further, what is there to prevent some one with a strong following from offering a classification based on the agglutinin formula of the serum, employing the capital letters to refer to the agglutinins, or one based on the use of small letters or Greek letters to refer to the agglutinins or even to the agglutinogens?

There now appears to me to be only one solution of the problem at hand. There cannot be any compromise. The inevitable should be squarely faced in order to avoid the confusion that will be the result of the introduction of a third classification. First of all, the "new" Landsteiner classification should be dropped by all that are now attempting to use it. This, of course, calls for cessation of all agitation in its favor. With this accomplished, there is a return to the status quo. Now that the facts are available it ought to be an easy matter to bring about not a compromise but uniformity. Since more than three fourths of the hospitals performing blood grouping are using the Moss classification, it seems that the other fourth should be willing in the interest of uniformity to make this change rather than to face the inevitable—three classifications—and at the same time practically commit themselves to a definite agglutinogen content of the cells which later may be shown to be far from the truth. Such a change can best be brought about by an appeal to these hospitals themselves. The appeal should come from the American Medical Association and the American College of Surgeons. Unless it is brought about through these two organizations and done not by force or by committee recommendations but in their usual way of bringing order out of chaos and clearing up important matters, the appeal would not have any effect.

It is possible that when the results of this questionnaire, as set forth in the various tables, especially table 2, are published and certain hospitals see for themselves that they stand with a very small minority or even alone in their locality or state, they will change of their own accord in the interest of uniformity. If uniformity can first of all be obtained in the municipalities and later in the states, this would be a great stride forward. It would be much better to secure uniformity in this way and it could be done very easily in all states with the possible exceptions of New York—particularly New York City—and Pennsylvania, where one third of all those using the Jansky classification are located. For example, on the basis of this report, uniformity was attained in this city (Rochester, N. Y.). This was not done by coercion but by suggestion and a willingness to cooperate on the part of the one hospital involved.

There comes to mind at this point a statement appearing in a number of the questionnaires to the effect that the change in classification was due to a change in technicians, or "classification has varied with the technician employed." Such an occurrence should never be tolerated by any hospital. The technician should conform with the classification already official in that hospital but never should the hospital change its classification at the pleasure of a new technician.

6. Guthrie, C. G., and Huck, J. G.: On the Existence of More Than Four Isoagglutinin Groups in Human Blood, Bull. Johns Hopkins Hosp. **34**: 37-48 (Feb.), 80-88 (March), 128-135 (April) 1923. Huck, J. G., and Guthrie, C. G.: Further Studies on Blood Grouping: I. The Antigenic Properties of Two Types of "Group I Erythrocytes," ibid. **35**: 23-27 (Jan.) 1924. Guthrie, C. G., and Pessel, J. F.: Further Studies on Blood Grouping: II. The Influence of Temperature upon Isohemagglutination, ibid. **35**: 33-38 (Feb.) 1924; Further Studies on Blood Grouping: III. The Varied Types of Group IV Blood, ibid. **35**: 81-85 (March) 1924; Further Studies on Blood Grouping: IV. The Demonstration of Two Additional Isoagglutinins (D and Q) in Human Blood, ibid. **35**: 126-131 (April) 1924. Guthrie, C. G.; Pessel, J. F., and Huck, J. G.: Further Studies on Blood Grouping: V. The Recognition of Three Types of "Group II" Blood, ibid. **35**: 221-226 (July) 1924.

7. Coca, A. F., and Klein, H.: A Hitherto Undescribed Pair of Isoagglutination Elements in Human Beings, J. Immunol. **8**: 477-485 (Nov.) 1923.

8. Tebbutt, A. H.: Irregularities in Isoagglutination, M. J. Australia (supp.) **1**: 234-235 (April 19) 1924.

9. Landsteiner, K., and Witt, D. H.: Observations on Human Isoagglutinins, Proc. Soc. Exper. Biol. & Med. **21**: 389-392, 1924. Observations on the Human Blood Groups, Irregular Reactions, Isoagglutinins in Sera of Group IV: The Factor A^1, J. Immunol. **11**: 221-247 (March) 1926.

10. Kline, B. S.; Ecker, E. E., and Young, A. M.: The Incidence of Two Types of Group II Human Red Blood Cells, J. Immunol. **10**: 595-597 (May) 1925

11. Simson, F. W.: A Study of the Third Agglutinating System in Human Blood, J. Path. & Bact. **29**: 279-291 (July) 1926.

12. Jones, A. R., and Glynn, E. E.: The Four Human Blood Groups with Special Reference to Their Agglutination Titers and to Abnormal Donors, J. Path. & Bact. **29**: 203-219 (April) 1926.

13. Bunker, H. A., Jr., and Meyers, S.: Blood Groups in General Paralysis: Agglutinin-Agglutinogen Formula, J. Lab. & Clin. Med. **12**: 415-426 (Feb.) 1927.

SUMMARY

The results of the replies to this questionnaire on blood grouping, which was answered by 552, or 90.3 per cent of the 611 hospitals circularized in the United States and Canada, may be summarized as follows:

1. The Moss classification of blood groups is in use in 392, or 71 per cent, of these hospitals; the Jansky in ninety-one, or 16.5 per cent; the Jansky-Moss in sixteen, or 2.9 per cent, and the "new" Landsteiner in twenty-six, or 4.7 per cent. About three fourths of the hospitals that do blood grouping are still using the Moss classification.

2. Previous to the recent agitation for another classification, the Jansky classification was employed by only 100, or 18.1 per cent, of these hospitals; the Moss by 407, or 73.7 per cent, and the Jansky-Moss by fifteen, or 2.7 per cent. Considerably more than three fourths of the hospitals performing blood grouping were then using the Moss classification.

The 611 hospitals circularized contain a total of 167,058 beds. Hospitals that used the Jansky classification contained 34,516, or 20.7 per cent, of these beds; hospitals that used the Moss classification, 110,434, or 66.1 per cent; hospitals that reported by both the Jansky and the Moss classification, 3,001, or 1.8 per cent; hospitals that did not use any classification, 8,708, or 5.2 per cent. Hospitals that failed to answer the questionnaire have a total bed capacity of 10,399, or 6.2 per cent of all beds. In the 522 hospitals in which blood grouping is performed, slightly less than one fourth of the beds are in hospitals in which the Jansky classification was official and close to three fourths of the beds are in hospitals in which the Moss classification was official.

3. Prior to 1921, only thirty-one, or 8.5 per cent, of the hospitals throughout the United States were employing the Jansky classification, whereas 249, or 68.6 per cent, were using the Moss classification. In other words, 90 per cent of the hospitals that were performing blood grouping at that time—when the committees recommended the adoption of the Jansky classification on the basis of priority—were using the Moss classification.

4. About 70 per cent of those hospitals performing blood grouping are not in favor of a compromise system such as the "new" Landsteiner classification. This opposition comes about equally from those using the Jansky classification and those using the Moss classification. Further confusion or complication is postulated by an even greater number.

5. There were 155 hospitals replying to this questionnaire which started blood grouping after the committees' recommendation in 1921 that the Jansky classification be adopted. Of these twenty-two, or 14.2 per cent, adopted the Jansky classification; 121, or 78.1 per cent, adopted the Moss classification; seven, or 4.5 per cent, adopted the combined Jansky-Moss method of reporting, and five, or 3.2 per cent, went even further and changed from Jansky to the Moss classification. The Moss classification was adopted, therefore, by 82.5 per cent of the hospitals starting blood typing since 1921.

CONCLUSIONS

The recommendation in 1921 of the committees appointed to consider blood group classifications did not result in any considerably increased use of the Jansky classification, which they recommended for adoption. The practically universal use of the Moss classification at that time was completely and purposely cast aside. Therefore, in place of bringing order out of chaos, chaos was increased in the larger cities.

The pronounced opposition to the "new" Landsteiner classification bids fair to make matters worse, and it should be abandoned by the small number of institutions already employing it in one way or another. This should be done in the interest of the medical profession, the hospitals in which blood grouping has its foremost application, as in the grouping of donors for transfusion, and in the interests of ultimate uniformity. Needless to say, the agitation coming from the few that are overzealous with respect to its future should also cease, since the results of this questionnaire show that if this classification is to exist in the future it will be as a third classification.

The Moss classification, in which persons in group IV are considered "universal donors," should be adopted as official in all institutions in this country performing blood grouping. This conclusion is based on the results obtained from the questionnaire here reported, and the facts fully justify it. A change of this sort will affect only about one fourth of these institutions. Since uniformity cannot be attained in any other way, as has been fully demonstrated since 1921, this change should be voluntarily made by these institutions as soon as possible. Faced as they now are by a proposed compromise classification meeting an opposition at the start of more than 50 per cent, they should once and for all end the whole controversy and abide by the will of the majority.

LATER DEVELOPMENT OF BREAST FED AND ARTIFICALLY FED INFANTS

COMPARISON OF PHYSICAL AND MENTAL GROWTH *

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Much has been written about the advantages of breast feeding over artificial feeding of infants but the emphasis has been placed on the effect during the first two years of life. Few, if any, investigations have been made bearing on the later physical and mental development of the babies. It is our purpose in this article to report, with no attempt at interpretation, the results of tests and measurements made on 383 children, ranging in ages from 7 to 13 years and grouped according to the length of the period of exclusive breast feeding.

The data here presented are a part of a study of growth, now in preparation for publication, which was made under the auspices of the Elizabeth McCormick Memorial Fund in Joliet (Ill.) public schools during the last five years. Development and growth were determined by medical examinations of the children stripped, made by Drs. Stanley Gibson, S. C. Henn and Harold Rosenbaum, pediatricians of Chicago. Anthropometrical measurements were taken under the direct supervision of the late Dr. Bird T. Baldwin of the University of Iowa Research Station, and we made the educational and psychologic examinations. The information on infant history was secured from four sources: (1) the home blank filled out by each parent at the beginning of the investigation; (2) history records taken at the time of each yearly medical examination; (3) "baby book" records in a large percentage of the cases, and (4), as a final check, a personal interview

* From the Elizabeth McCormick Memorial Fund.

with the mother in the home at the close of the five-year study. In each of these sources the mother or guardian was the informant, but probably the most reliable records were those obtained during the home interview, in which fuller and freer discussion was possible.

TABLE 1.—*Comparison of the Percentage of Breast Feeding Among Unselected and Gifted Groups with the Three Hundred and Eighty-Three Joliet Children*

Duration of Breast Feeding	Woodbury, per Cent	Terman, per Cent	Joliet, per Cent
One month or longer	90.1	92.4	82.0
Two months or longer	81.6	89.2	79.6
Three months or longer	75.8	83.9	74.9
Four months or longer	69.1	77.5	69.7
Five months or longer	65.4	73.8	67.4
Six months or longer	61.6	68.0	66.3
Seven months or longer	55.0	61.4	62.9
Eight months or longer	51.0	57.4	60.8
Nine months or longer	46.7	54.2	60.1
Ten months or longer	41.4	47.6	49.6
Eleven months or longer	37.9	41.3	43.6
Twelve months or longer	35.0	34.7	39.9

An interesting comparison (table 1) may be made of the proportion of Joliet children who were entirely breast fed for the various periods with those found by Terman in a study of 589 gifted children and by Woodbury in a study of 20,504 unselected cases from industrial cities. The results show that there was a slightly larger percentage of children nursed longer than ten months among the Joliet children than among either of the other two groups.

The physical measurements here reported consist of the height-weight-age index; Pirquet's pelidisi (a relationship of weight to sitting height used by him as an index of nutrition); muscle tone as measured by the hand dynamometer, and an index of the general physical condition represented by the judgment of the examining pediatrician. Mental development was measured by individual psychologic examinations with the Stanford

TABLE 2.—*A Comparison of the Later Physical Development of Artificially Fed and Breast Fed Infants*

	Artificially Fed	Breast Fed: 3 Mos. or Less	Breast Fed: 4 to 9 Mos.	Breast Fed: 10 to 20 Mos.
Number of cases	38	78	77	190
Percentage in each group overweight*	34.2	38.5	48.1	38.9
Percentage underweight	65.8	61.5	51.9	61.1
Percentage underweight more than 10%	18.4	18.4	9.2	13.7
Percentage of tall children	0	5.1	2.6	3.2
Percentage of medium height	73.7	70.5	68.8	61.6
Percentage of short children	26.3	24.4	28.6	35.3
Percentage above average muscle tone	23.7	28.2	35.1	32.6
Percentage below average muscle tone	76.3	71.8	64.9	67.4
Pelidisi (index of nutrition)	91.9	92.4	92.9	92.5
Percentage in good physical condition at present time (according to judgment of the physicians)	47.4	44.9	53.2	48.4
Age of dentition (months)	7.5	7.4	6.6	7.5
Age of walking (months)	14.7	12.9	12.5	12.8
Nationality rating of mother (percentage of American born)	81.6	78.2	84.4	75.3
Nationality rating of family (percentage of American born)	75.0	74.7	75.4	68.5

* Baldwin-Wood norms. The term "overweight" includes average and above; "underweight" applies to all below average.

Revision of the Binet-Simon intelligence test and the Pintner-Patterson performance scale (a nonverbal intelligence test), and by a group educational test, the Stanford achievement test. The results from these tests are recorded in terms of quotients which express the relationship between the child's ability and what is expected of his age. The range of normality, or average ability, is from 90 to 110.

A summary of the results with regard to physical condition is given in table 2. The children were classified as artificially fed, or as breast fed for three months or less, from four to nine months and from ten to twenty months.

A study of table 2 shows that the artificially fed rank below all of the breast fed groups and that those breast fed from four to nine months rate the highest. There were no tall children among the artificially fed and there were, on the average, fewer overweights, more underweights, fewer above the average in muscle tone, more below the average, a lower pelidisi and a later age of walking in this group than in any of the groups who were breast fed.

Dr. S. Josephine Baker [1] states that the most important of all the basic causes of ill health during childhood is a lack of bodily nutrition. It should be of value, therefore, to compare some of the indexes of nutrition, realizing that each index is to be understood only as additional information to the medical examination of the pediatrician.

TABLE 3.—*Incidence of Diseases of Artificially Fed and Breast Fed Infants*

	Artificially Fed	Breast Fed: 3 Mos. or Less	Breast Fed: 4 to 9 Mos.	Breast Fed: 10 to 20 Mos.
Number of cases	38	78	77	190
Measles	97.4	97.4	90.9	94.7
Whooping cough	65.8	74.4	81.8	69.5
Mumps	63.2	48.7	59.7	50.0
Pneumonia	31.6	16.7	19.5	19.3
Bronchitis	13.2	17.9	16.9	19.5
Scarlet fever	28.9	16.7	18.2	23.2
Diphtheria	13.2	6.4	11.7	9.5
Influenza	28.9	30.8	23.4	25.8
Average number diseases per child	3.5	3.1	3.2	3.1
Percentage having four or more diseases	50.0	30.8	36.4	36.3

When the cases of extreme underweight are analyzed, it may be seen that:

(*a*) There were 18.4 per cent of the children artificially fed and only 9.2 per cent of those breast fed from four to nine months who were underweight more than 10 per cent.

(*b*) There were eight times as many of the artificially fed children as of those breast fed from four to nine months who were underweight more than 15 per cent, as shown by the following figures:

Eight per cent of the artificially fed group were underweight more than 15 per cent.

Five per cent of the group breast fed three months or less were underweight more than 15 per cent.

1 per cent of the group breast fed from four to nine months were underweight more than 15 per cent.

Two per cent of the group breast fed from ten to twenty months were underweight more than 15 per cent.

As there were no tall children in the artificially fed group, it appears that the rapid growth of these children is not a factor in the underweight condition.

Although Dr. W. E. Carter [2] states that in his judgment a pelidisi under 94 is indicative of poor nutrition in American born children, Dr. J. L. Blumenthal and Dr. S. Josephine Baker [3] conclude that "a pelidisi of 93 and under shows an excessive percentage of undernourishment that does not seem to be warranted either

1. Baker, S. Josephine: Child Hygiene, New York, Harper & Brothers, 1925, p. 412.
2. Carter, W. E.: The Pirquet System of Nutrition and Its Application to American Conditions, J. A. M. A. **77**: 1541-1546 (Nov. 12) 1921.
3. Baker, S. Josephine: Child Hygiene, New York, Harper & Bros., 1925, p. 427.

by the physical examination of the children or by the estimation of their nutrition by the height and weight method. . . . The pelidisi of 92 and under . . . more nearly approximates the condition of undernourishment found by the height and weight tables of Wood but is less than the total of 25 per cent found by the physical examination method." Although the variations between the groups are almost negligible, the artificially fed group has the lowest pelidisi and is the only one classified definitely as undernourished.

Analysis of the patients classified by the physicians as being in good condition at the time of the medical examination shows that a smaller percentage had been artificially fed than had been breast fed at least four months.

When the nutritional status of these children is summarized a general agreement is apparent on the percentage of underweight, the pelidisi, and the physician's judgment on the advantages of breast feeding over artificial feeding.

Height, often considered an hereditary trait, does not seem to be influenced by the type of feeding. The differences in the percentages of short and tall children are neither consistent among the groups nor explainable on the basis of nationality. For though there is a larger percentage of foreign born parents in the group having the most short children, the southern and northern European countries seem equally represented in the two groups.

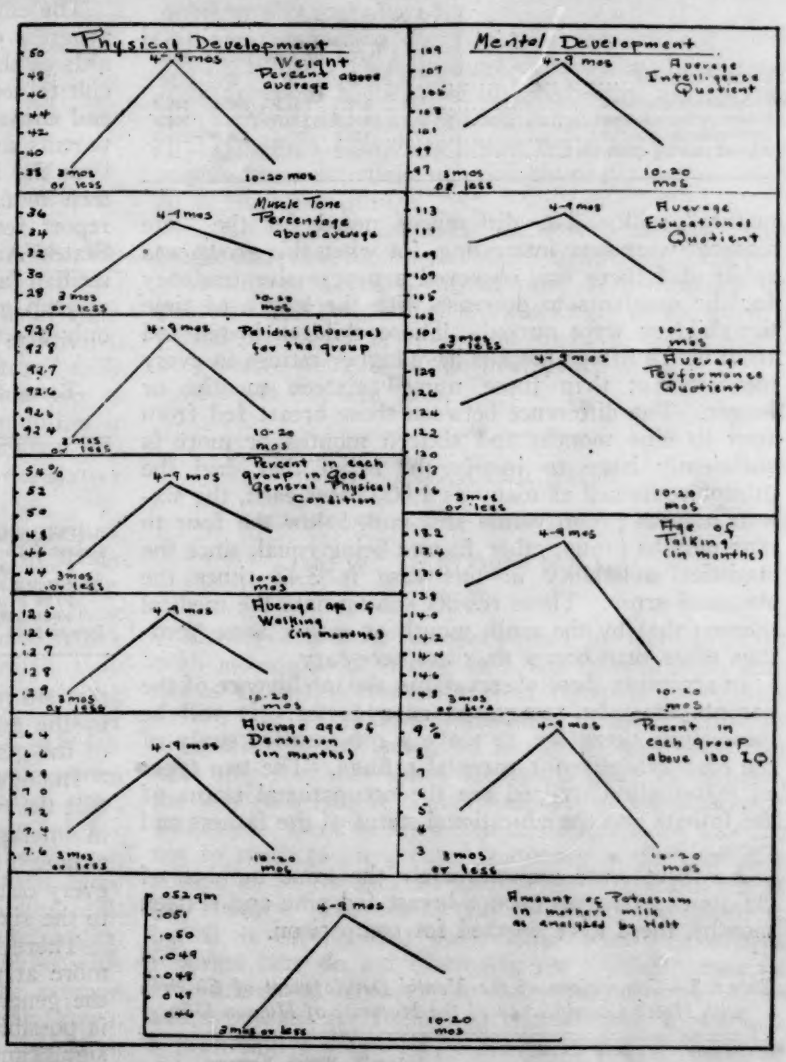
In addition to the differences found between the breast fed and the artificially fed, there are differences in physical ratings among the breast fed themselves which appear to correspond to the variations in the chemical maturity of the mother's milk. The general classification of breast fed infants followed in this report is the same as that given by the late Dr. L. Emmett Holt and Dr. John Howland [4] according to the stages of the maturity milk secretion. Their divisions are, from one to twelve days, "transition milk"; from one to three months, inclusive, "early mature"; from four to nine months, "middle mature," and from ten to twenty months, "late mature."

The graphic presentation in the accompanying chart of the results from the physical traits shows a striking uniformity of agreement. In every case the "middle mature" stage (from four to nine months) is the highest point of the curve and, with one exception—dentition—the "early" stage (less than three months) is the lowest. If a similar curve is plotted for the constituents found in woman's milk, as analyzed by Holt, it is found that potassium is the only element in which the variations in amount parallel these developmental curves.

Statements made concerning the immunity of the breast fed to the most common children's diseases have applied for the most part to infancy. A comparison of the later incidence of these diseases with the type of infant feeding is given in table 3.

An inspection of the results shows that 50 per cent of those artificially fed had four or more of the diseases listed and that the average number of diseases per child was slightly higher in the artificially fed than in the breast fed groups. Although there is apparently no immunity to any special disease, the breast fed infants seem much less susceptible to these childhood diseases than the artificially fed.

From an analysis of the results on mental development in table 4, it will be seen that the artificially fed were inferior in all standardized measurements to those breast fed from four to nine months, and, with one exception, to those breast fed three months or less. They, however, equaled or excelled those breast fed


Physical Development
Weight
Percent above average
Muscle Tone
Percentage above average
Pelidisi (Average) for the group
Percent in each group in Good General Physical Condition
Average age of Walking (in months)
Average age of Dentition (in months)
Mental Development
Average Intelligence Quotient
Average Educational Quotient
Average Performance Quotient
Age of Talking (in months)
Percent in each group above 130 IQ
Amount of Potassium in mothers milk as analyzed by Holt
4-9 mos
3 mos or less
10-20 mos

Comparison of physical and mental development according to length of period of breast feeding with the variations in the amount of potassium in mother's milk as analyzed by Holt.

from ten to twenty months. In learning to talk, the artificially fed were the most retarded of all the groups.

The statement is frequently made that it is the foreign born mother who nurses her infants over very long periods. The lower percentage of American born mothers who nursed their babies for from ten to twenty months as given in table 2 confirms this statement. It does not seem likely, however, that the nationality difference is the factor influencing these results on mental development. For although there is an exact correspondence between the intelligence quotients and the nationality ratings of all the groups, no such relation is observed with the results from other tests. In the performance test in which language requirements are reduced to the minimum, and in the educational achieve-

4. Holt, L. E., and Howland, John: The Diseases of Infancy and Childhood, New York, D. Appleton & Co., 1927, p. 117.

ment test, the artificially fed, with 82 per cent of American born mothers, had next to the lowest scores.

Comparisons among the breast fed show for mental growth the same general tendencies toward a correlation between the stages of chemical maturity of breast milk and the scores of the children as observed in the ratings on physical development. The highest ratings were always found in the group fed the "middle mature" milk. The differences noted for the "late mature" were very interesting, for when this group was subdivided there was observed a progressive tendency for the quotients to decrease with the length of time the children were nursed. Those children breast fed from ten to fifteen months have higher ratings in every measurement than those nursed sixteen months or longer. The difference between those breast fed from four to nine months and sixteen months or more is sufficiently large to justify the belief that, had the groups contained as many as 1,000 cases each, the sixteen months group would still rank below the four to nine months group, other factors being equal, since the statistical reliability in this case is 3.42 times the standard error. These results substantiate the medical opinion that by the ninth month or earlier some feedings other than breast milk are necessary.

TABLE 4.—*Comparison of the Later Mental Development of Artificially Fed and Breast Fed Infants*

	Artificially Fed	Breast Fed		
		3 Mos. or Less	4 to 9 Mos.	10 to 20 Mos.
Number of cases	38	78	77	190
Intelligence quotient	102.3	101.9	107.6	100.6
Educational quotient	106.5	109.6	112.1	105.5
Performance quotient	122.0	125.3	128.3	121.5
Age of talking (months)	15.2	13.7	13.3	14.5

In accepting these observations, the intelligence of the parents must be recognized as a factor. It will be interesting, therefore, to make a comparative study of the data available for parental ratings. The two types of information utilized are the occupational status of the fathers and the educational status of the fathers and the mothers.

As there were approximately the same number of children in the two groups breast fed nine and sixteen months, these were selected for comparison.

TABLE 5.—*Comparison of the Mental Development of Children with Holt's Classification of the Maturity of Human Milk*

	Intelligence Quotient	Educational Quotient	Performance Quotient	Age of Talking
Transition and early mature milk (3 mos. or less)	101.9	109.6	125.3	13.7
Middle mature milk (4-9 mos.)	107.6	112.1	128.3	13.3
Late mature milk (10-20 mos.)	100.6	105.5	121.5	14.5
10-15 mos.	101.2	106.1	122.5	14.5
16 mos. and more	97.8	102.9	117.5	14.7

The Barr scale of occupational intelligence expresses "in the case of each occupation the number of units of intelligence which, according to the composite opinion of thirty judges, the occupation demands for ordinary success."[5] According to the scale, the fathers of the nine months group rated 9.59 while those of the sixteen months group rated 8.98. The small difference of 0.61 seems to indicate that the fathers of the two groups were approximately equal in ability, as measured by this scale. The occupational rating for the average adult population is 8.88, which rates these two groups as average. It may be possible that these scores were affected by the inability of the foreign-born fathers to hold as high positions as their intelligence would warrant because of language difficulties. If, then, only the American-born fathers are compared, the ratings of each group are raised but the difference remains the same. The average ratings of the groups as they now stand are 10.39 for the nine months and 9.78 for the sixteen months group, a difference again of 0.61.

The educational status was determined by the school progress of the parents. The variations in the standards of the American and foreign schools make it difficult to compare the school experience of these groups, and consequently only the results from American-born parents are presented. The median grade reached by both the fathers and the mothers of the nine and sixteen months groups was the eighth. In the official report for the native born white draft of the United States Army in the late war, 6.9 was given as the median amount of schooling, or approximately the seventh grade. It is a most interesting fact that not only are the educational advantages of the parents in this study the same for the two groups, as measured by the grade progress, but they are above the average of the general population, as the draft figures indicate.

TABLE 6.—*Comparative Data on Fifty-Two Children of Superior Intelligence*

	Percentage of Each Group Having Intelligence Quotients of 120 and Above	Percentage of Each Group Having Intelligence Quotients of 130 and Above
Artificially fed	5.2	0
Breast fed		
3 months or less	15.4	5.1
4 to 9 months	20.8	9.1
10 to 15 months	12.4	3.3
16 months or more	8.1	2.7
Breast fed	14.2	4.9

In summarizing the parental ratings, there is evidence that the parents of these groups differed little, if at all, in intelligence and that they were of average ability, although the mental ratings of the children showed in every comparison the nine months group to be superior to the sixteen months group.

There are many known factors, and perhaps many more at present unrecognized ones, that contribute to the general intellectual ability of an individual, and it is possible that the diet through infancy may be more significant and specific in its influence than has been commonly thought. If there is a chance, and this study definitely indicates that there is, of prolonged breast feeding having some detrimental effect which later is manifested by a lower mental rating, physicians should certainly sound a warning note to mothers before they leave their doctor's care. This does not imply that the child may be subnormal but only that his mental development may not be as likely to attain its maximum efficiency.

The importance of breast feeding is further emphasized by the fact that among those children having the highest intelligence quotients not a child artificially fed rated as high as 130, while 5 per cent of those breast fed were above this score. Although these groups are somewhat selective, this comparison is rather startling when it is realized that among the general population not more than 1 per cent are expected to rank above 130. Of the 539 gifted children studied by Terman,

5. The detailed description of Barr's Scale Rating of Occupational Status is found in Terman et al.: Genetic Studies of Genius, Stanford University Press, 1: 66-72, 1925.

8.2 per cent were artificially fed as against 47.5 per cent breast fed entirely.

From the data given in table 6 it would seem that, other factors being equal, infants having some breast feeding have, on the average, a better chance to develop a high degree of intelligence than those artificially fed.

Corroboration of the relationship previously observed between the stages of milk maturity and the later development is given by the results on mental superiority. The highest percentage of bright children is found in the group having the "middle mature" milk. Throughout the "late mature" stage (from ten to twenty months) there is a progressive diminution in the number of high intelligence scores, the smallest percentage of the breast fed group occurring in the sixteen months group.

TABLE 7.—*Comparative Effect of Breast Milk, Modified Cow's Milk and Unsweetened Evaporated Milk*

	Intelligence Quotient	Educational Quotient	Weight			Muscle Tone		
			% Over Wt.	% Under Wt.	10% Under Wt.	% Over	% Below Normal	10% Below Normal
Breast (9 mos.)	105.4	111.5	42.5	57.5	12.5	25.0	75.0	55.0
Cow's milk.....	104.2	107.6	29.4	71.0	5.8	29.4	71.0	47.1
Unsweetened evaporated milk.....	102.2	107.7	23.1	73.9	39.1	17.4	82.6	82.6
Cow's milk (1-3 mos.).....	104.4	113.2	38.9	61.1	5.5	38.9	61.1	33.3
Unsweetened evaporated milk (1-3 mos.)	99.3	108.6	37.5	62.5	18.7	25.0	75.0	43.8

The term breast milk represents a definite product, while artificial food refers to a great variety of foods. To analyze further the effects of artificial feeding, therefore, the two foods most frequently used in these cases have been selected for study—modified cow's milk and a brand of unsweetened evaporated milk (table 7). Comparisons are given of those receiving for nine months breast milk, modified cow's milk or evaporated milk, and also of those having breast feeding for three months or less followed by either modified cow's milk or evaporated milk for the remaining time.

Inspection of table 7 shows that those breast fed for nine months were, on the whole, superior to those given either cow's milk or evaporated milk for the same period. Those given the unsweetened evaporated milk had a lower intelligence rating, were more underweight, and comprised the larger percentage of children with muscle tone more than 10 per cent below the average than either the breast fed or those given modified cow's milk. So far as weight and muscle tone are indicative of nutritional status, the children fed unsweetened evaporated milk are at the present time the most poorly nourished group of those studied. It is recognized that there are times when certain children tolerate only the unsweetened evaporated milk, but it is questionable whether this food should ever be given alone over an extended period.

SUMMARY

An analysis of the infant feeding history of 383 elementary school children has shown the following facts concerning their later development:

A. Children who were artificially fed were, on the whole, inferior physically and mentally to the breast fed.

1. Except for height, they ranked the lowest in all the physical traits measured. In this one exception they were the only group not showing any acceleration.

2. From the standpoint of nutritional indexes, they were the poorest nourished group.

3. On the average, they were the most susceptible to diseases of childhood.

4. In learning to talk and to walk, they were the slowest of all the groups.

5. In mental development the artificially fed ranked next to the lowest, the lowest being those breast fed from ten to twenty months.

6. Of the children with superior intelligence (intelligence quotient 120 and above) the smallest percentage was found in the artificially fed group.

7. Of the artificially fed children, not a child was classified as being exceptionally bright (intelligence quotient 130 and above).

8. In considering the two types of artificial foods most commonly used by these children, modified cow's milk appeared to be a more satisfactory aid to later development than unsweetened evaporated milk.

B. Children who were breast fed from four to nine months were definitely superior physically and mentally to all the other groups.

C. Children who were fed exclusively on breast milk longer than nine months, although apparently developing physically at a fairly normal rate, were mentally the poorest of all the groups. As the length of the nursing period increased beyond nine months, there was a progressive decrease in the intelligence ratings.

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MENINGOCOCCEMIA

REPORT OF CASE, WITH RECOVERY *

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Meningococcemia, unaccompanied by meningitis, or with meningitis occurring as a late complication, continues to be reported with great rarity in the United States. In 1924 Dock [1] was able to find reports of nine cases in the American literature, and since that time only four more have been published. In contrast, the foreign literature contains reports of approximately 110 cases. Dock believed that this discrepancy was due not so much to the greater frequency of the condition abroad as to the lack of knowledge of the disease in this country. There is no way of settling this question, but it is certain that those cases which have been reported here do not exemplify the typical picture as it is known in Europe. In many instances the signs and symptoms are sufficiently characteristic to warrant a presumptive diagnosis before bacteriologic confirmation. The present case was so diagnosed by a visiting physician.

In a communication of this kind, it is impossible to give an elaborate analysis of the common observations, but attention must be directed to the peculiar picket-fence temperature with its marked superficial resemblance to malaria, the occasional joint symptoms, the recurrent skin lesions, the ever impending danger of the onset of meningitis, and the prolonged course in certain cases. Rolleston,[2] in an extensive survey of meningococcic infections, briefly notes the occurrence of uncomplicated septicemia. Zinsser [3] describes the occurrence of the condition in the interepidemic as well as in the epidemic periods previously recognized; but

* From the Medical Clinic of the Peter Bent Brigham Hospital.

1. Dock, William: Intermittent Fever of Seven Months' Duration Due to Meningococcemia, J. A. M. A. **83**: 31 (July 5) 1924.
2. Rolleston, Humphry: Lumleian Lectures on Cerebrospinal Fever, Lancet **1**: 541 (April 5) 1919.
3. Zinsser: Text Book of Bacteriology, 1927.

for a full discussion of the syndrome as known in Europe, one should consult the articles by Chalier, Giraud and Morel,[4] and by Jacono,[5] which describe the condition as a definite clinical entity.

Treatment has been under discussion, especially in France, where specific therapy has not proved particularly successful. Controversy is chiefly concerned with whether or not specific therapy is of value. Lavergne and Carot,[6] Lesné, Marquézy and Lambling,[7] and Boidin[8] report instances of recovery after turpentine fixation abscesses; some of these patients had failed to improve with serum. Merklen, Wolf and Froelich[9] report failure with serum and autoserum, and recovery following protein shock. Merle[10] obtained improvement from serum, followed by recovery with the use of autovaccine. Neergaard[11] gives the histories of two patients in whom serum did not have any apparent effect on the clinical course; both recovered some time later. Spirt and Braun[12] and Lechner[13] obtained prompt relief from specific therapy. For the extreme shock of some severe cases, the use of small injections of epinephrine, advocated by Fontanel,[14] apparently finds pathologic justification in Battley's[15] case, in which there was hemorrhage into the suprarenal gland. The skin lesions associated with meningococcemia are noted particularly by Marotte,[16] Brown[17] and Le Bourdellès.[18] Gulland and Logan[19] and Stirpe[20] reported cases of prolonged illness complicated by late meningitis. Interesting cases also are reported by Lemmers and Danforth[21] and by Friedman and Deicher,[22] the latter being particularly noteworthy in that one of the authors contracted the disease from the patient but speedily recovered. There are also several articles[23] that were not available for summary but are added in order to complete the bibliography since July, 1924.

The following case report is presented in the hope that attention may once more be directed to a definite clinical entity, seldom recognized in this country and yet presumably no less common than abroad.

REPORT OF CASE

A girl, aged 12 years, was referred to the hospital, March 31, 1928, because of an intermittent fever of eight weeks' duration. The first attack had occurred early in the morning as a chill of short duration with weakness, gooseflesh and a shaky feeling, followed by a "hot spell" lasting about an hour, with a temperature of 103 F., headache in the frontal region, and marked general malaise. The attack passed off with a profuse sweat and the patient felt well until the onset of subsequent similar attacks. During the eight weeks before admission, chills associated with fever and sweating recurred, with periods of one or two days of freedom intervening. The later attacks were preceded by half an hour of tiredness and weakness, but during the first month of the disease the patient attended school and was not ill enough to require the attention of a physician. The chills throughout the illness were irregular, not coming at any particular time of day. They were accompanied by nausea and muscle pains, and from time to time small discrete macular lesions, sometimes having a white center, appeared in the skin. In the few weeks before admission the blood was carefully searched for malarial organisms with negative results, and full doses of quinine were given without effect on the fever.

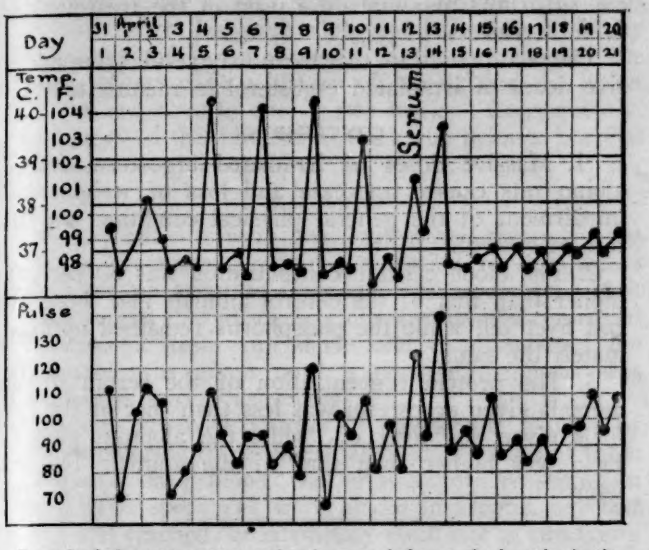
The past history did not give any clue to the diagnosis. Heredity was good, as was also previous hygiene. The patient had had measles at 3, whooping cough at 9, chickenpox and German measles at 10, and mumps at 11 years of age, and had had sore throat about twice in the past. There was no history of typhoid and no known association with tuberculosis. With the exception of those mentioned, there were no symptoms referable to the cardiorespiratory, gastro-intestinal or genito-urinary systems. The patient, until the onset of the present illness, had always been a bright, intelligent and healthy girl.

The head, mouth and throat were normal. The lungs were clear. The heart sounds were of good quality, and murmurs were not heard. The abdomen was soft; no masses, tenderness or spasm were elicited. The liver and spleen were not palpable with good cooperation from the patient. The skin did not show any lesions, but two days later about a dozen macular and maculopapular dull red areas, from 2 to 5 mm. in diameter, appeared on the face, trunk and extremities. Similar lesions appeared periodically thereafter.

Extensive studies were undertaken to determine the cause of the intermittent fever. A stereoroentgenogram of the chest did not show any evidence of pulmonary tuberculosis; there were calcified glands at each hilum. Repeated blood smears taken during and between paroxysms of fever did not show any malarial parasites. Daily urinary sediments revealed white blood cells, varying from an occasional one to a moderate number. A culture was taken of a catheter specimen, but it did not show any growth. The Widal reaction was negative in all dilutions. Routine skin tests were negative for all substances tried. A throat smear and culture did not yield any Klebs-Loeffler bacilli. A blood culture taken four days after admission did not give any clouding of the broth medium, but in a smear three or four gram-negative diplococci were found which were questionably meningococci. Replanting on plates did not give a growth. Confirmation was finally obtained, thanks to the cooperation of the bacteriology department of Harvard University Medical School. The organism was grown on enriched medium, and after four days' growth in broth was definitely identified as the meningococcus. The chief observations were the following: The organism grew very poorly in subculture. In the serum prepared by the Massachusetts State Laboratory at Forest Hills, agglutination in a dilution of only 1:10 could be obtained. In the polyvalent serum obtained from the New York State Laboratory in Albany, a dilution of 1:160 was the highest that would cause an agglutination. Conclusive results were difficult to obtain as the organisms emulsified in saline solution had a tendency toward spontaneous agglutination.

4. Chalier, Giraud and Morel: Meningococcus B. septicemia, J. de méd. de Lyon **7**: 565-578 (Dec.) 1926.
5. Jacono: Meningococcemia, Riforma med. **40**: 755-756 (Aug. 11) 1924.
6. Lavergne and Carot: Case of Meningococcus Septicemia, Bull. et mém. Soc. méd. d. hôp. de Paris **50**: 1713-1718 (Dec. 16) 1926.
7. Lesné, Marquézy and Lambling: Prolonged Meningococcemia of Pseudomalarial Form, Bull. et mem. Soc. méd. d. hôp. de Paris **50**: 1376 1382 (July 30) 1926.
8. Boidin, L.: Pure Meningococcus B. Septicemia: Turpentine Fixation Abscess: Cure, Bull. et mém. Soc. méd. d. hôp. de Paris **50**: 815-818 (May 21) 1926.
9. Merklen, P.; Wolf, M., and Froelich, A.: Therapeutic Meningeal Reactions in Meningococcemia, Paris méd. **2**: 329-333 (Oct. 24) 1925.
10. Merle, L.: Meningococcus Septicemia, Bull. et mém. Soc. méd. d. hôp. de Paris **49**: 1004-1005 (June 26) 1925.
11. Neergaard, A. E.: Meningococcus Bacteremia, M. Clin. North America **9**: 461-469 (Sept.) 1925.
12. Spirt and Braun: Klin. Wchnschr. **6**: 1048 (May 28) 1927.
13. Lechner, A.: Meningococcus Infection: Slow Form, Med. Klin. **22**: 1962-1963 (Dec. 17) 1926.
14. Fontanel, P.: Epinephrine in Treatment of Fulminating Meningococcemia, Paris méd. **1**: 528 (June 5) 1925.
15. Battley, Sinclair: Purpura Fulminans Due to Meningococcus, Am. J. Dis. Child. **33**: 244-248 (Feb.) 1927.
16. Marotte: Meningococcemia and Purpura, Bull. et mém. Soc. méd. d. hôp. de Paris **48**: 1004-1005 (June 26) 1925.
17. Brown, C. L.: Skin Lesions in Meningococcus Septicemia, Am. J. Dis. Child. **27**: 598-602 (June) 1924.
18. Le Bourdellès, B.: Frequent Presence of Meningococcus in Purpura Infections, Presse méd. **33**: 660-661 (May 20) 1925; abstr. J. A. M. A. **85**: 154 (July 11) 1925.
19. Gulland, G. L., and Logan, W. R.: Prolonged Meningococcemia with Terminal Meningitis, Brit. M. J. **1**: 687-688 (April 11) 1925.
20. Stirpe, G.: Septicemia with Late Meningitis (Case), Policlinico (sez. med.) **34**: 265-272 (May) 1927.
21. Lemmers and Danforth: Meningococcus Infection Without Meningitis, Ztschr. f. Kinderh. **44**: 551-555, 1927.
22. Friedman and Deicher: Lente Form of Meningococcus Sepsis (Two Cases) Deutsche Med. Wchnschr. **52**: 733-735 (April 30) 1926; abstr. J. A. M. A. **87**: 69 (July 3) 1926.
23. The following articles have appeared since July, 1924:
Cozzari: Meningococcemia and Streptococcemia in Infant, Pediatria **34**: 1073-1077 (Oct.) 1926.
Suairo: Cases, Med. ital. **7**: 650-664 (Nov.) 1926.
Perlin: Chronic Type of Meningococcic Septicemia, Boll. d. Soc. Med. Chir. di Pavia **1**: 1253-1267, 1926.
Fauque: Infection of Malarial Type with Purpura, Merging After Forty-One Days into Cerebrospinal Meningitis, Arch. de Med. et Pharm. mil. **85**: 296-299 (Nov.) 1926.
Bazan, F., and Derqui, J. C.: Meningococcus Septicemia (Case), Arch. latino-am. de pediat. **21**: 486-494 (July) 1927.
Lipinski, W.: Typhoid Modality of Meningococcic Septicemia, Polska gaz. lek. **6**: 400-402 (May 22) 1927.
Rhoads, C. P.: Vegetative Endocarditis Due to Meningococcus With Case Report, Am. J. Path. **3**: 623-630 (Nov.) 1927.

The patient was tested and found to be sensitive to horse serum, as shown by the reaction to the Massachusetts antimeningococcus serum. Desensitization by means of small subcutaneous and intravenous injections was attempted but was only partially successful. Intravenous injection of 15 cc. of serum diluted to 100 cc. was followed almost immediately by a moderately severe reaction. Epinephrine, and later ephedrine, were given for the shock and subsequent urticaria. For about ten days thereafter, small injections of serum were given subcutaneously and intramuscularly with the intention of maintaining the level of antibodies in the blood, as well as of preventing the development of increased sensitivity, should more serum be required. In all, about 65 cc. of serum was given.



Record of the temperature and pulse rate before and after the institution of serum treatment.

On the afternoon that specific therapy was started the temperature had already begun its usual preagonistic rise, so that I was encouraged to find it fall short of its previous peak. The following day the usual rise occurred with a more than ordinarily high pulse rate. But from then until the patient's discharge from the hospital, May 4, the temperature remained normal with the exception of a slight rise, which was apparently to be explained by too prolonged use of methenamine. The patient developed a mild irritation of the bladder, which subsided immediately on discontinuation of the drug. Three months after discharge from the hospital she had remained well.

The condition of the blood on admission was within normal limits, the red blood cells numbering 5,016,000, and the white blood cells, 11,000. The hemoglobin (Tallqvist) was 90 per cent and the differential count showed polymorphonuclears, 70 per cent, lymphocytes, 22 per cent, mononuclears, 4 per cent, eosinophils, 4 per cent and basophils, 0 per cent. The platelets and red blood cells were normal in appearance. The white blood cell count ranged between 9,000 and 12,500 on seven examinations between paroxysms. It was 22,750 at the height of the chill on one occasion. On twenty-four examinations the urine was negative, with the exception of the presence of a moderate number of white blood cells in uncatheterized specimens. During the time of the mild cystitis, although numerous white blood cells were found, the urine was sterile. No red blood cells or casts were found at any examination.

COMMENT

I must frankly admit that in view of the very low serum dilutions in which agglutination of the organisms was possible in this case, it is scarcely justifiable to assert that the favorable outcome was entirely due to the type of therapy used. Although such an assumption is certainly suggested by the prompt and complete subsidence of all symptoms, the tendency to spontaneous recovery noted by Dock must not be overlooked. In spite of the adverse reports, particularly from the French writers, specific treatment remains the logical procedure. Intravenous injection of polyvalent serum, whose potentiality is confirmed by agglutination with the organisms concerned, should be used over a long period of time before resort is had to other methods of treatment. One cannot help but feel that the failures are due to the use of inactive serum, or of inadequate doses, or possibly of a serum not containing antibodies for the particular infecting organism.

EFFECTS OF MASSIVE DOSES OF IRRADIATED ERGOSTEROL

PRELIMINARY REPORT *

IRWIN J. KLEIN

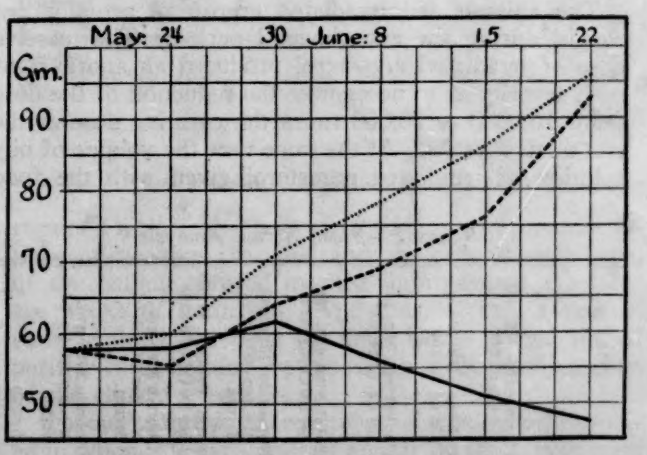
BROOKLYN

The striking effects of small doses of irradiated ergosterol in the prevention and treatment of rickets have been shown by Hottinger,[1] Rosenheim and Webster,[2] Hess, Weinstock and Sherman,[3] Hess and Windhaus,[4] Kreitmair and Moll [5] and A. F. Hess.[6]

Heretofore it has been impossible to study the effects of large doses of vitamin D because of impurities associated with the vital factor. The development of irradiated ergosterol has made it possible to administer tremendous doses to see what pathologic conditions, if any, would occur.

Albino rats weighing between 50 and 70 Gm. were fed on Steenbock [7] diet number 2965 (a low phosphorus ricketogenic diet) for four weeks. At the end of this time they showed definite rickets on section of the tibias and on roentgen examination.

The animals were then divided into three groups. One group, which served as controls, was exposed to reflected stray daylight. The second group was given, in addition, 2 per cent cod liver oil. The third group



Weights of rats with experimental rickets: solid line, those fed irradiated ergosterol; broken line, those fed cod liver oil; dotted line, controls.

* From the Pediatric Department and the Harry Caplin Research Laboratory, the Jewish Hospital of Brooklyn.

1. Hottinger, A.: Ztschr. f. Kinderh. **44**: 235-412 (Oct. 19) 1927.
2. Rosenheim, Otto; and Webster, T. A.: Biochem. J. **20**: 537-544, 1926.
3. Hess, A. F.; Weinstock, Mildred; and Sherman, Elizabeth: J. Biol. Chem. **67**: 413-423 (Feb.) 1926.
4. Hess, A. F., and Windhaus, A.: Proc. Soc. Exper. Biol. & Med. **24**: 368 (Jan.) 1927.
5. Kreitmair, H., and Moll, T.: München med. Wchnschr. **75**: 637 (April 13) 1928.
6. Hess, A. F.: Antirachitic Activity of Irradiated Cholesterol, Ergosterol and Allied Substances, J. A. M. A. **89**: 337 (July 30) 1927.
7. Steenbock, H., and Black, A.: J. Biol. Chem. **64**: 263 (June) 1925.

was given a solution of irradiated ergosterol in oil. From 20,000 to 100,000 times the dose necessary to cure rickets was administered daily. One cubic centimeter of the solution contained 10 mg. of irradiated ergosterol in sesame oil. The experimental period lasted for one month. The ricketogenic low phosphorus diet (Steenbock number 2965) was continued. The animals were weighed at weekly intervals and the amount of food consumed was measured.

TABLE 1.—*Average Weights*

Date	Rats Fed Irradiated Ergosterol, Gm.	Rats Fed Cod Liver Oil, Gm.	Controls, Gm.
May 24	57.9	55.4	60.0
May 30	62.1	63.6	71.4
June 8	56.7	68.6	78.4
June 15	50.4	76.2	86.4
June 22	47.2	93.6	95.6

At the end of the experimental period all the animals were killed and the blood was analyzed. The bones were sectioned and placed in silver solution for study. The organs were also sectioned and the remainder of the bones were prepared for subsequent analyses in the manner indicated by Shear and Kramer.[8] In this communication I report some preliminary observations.

TABLE 2.—*Average Lengths* *

Condition of Rat	Length, Cm.
Fed irradiated ergosterol	13.3
Fed cod liver oil	14.3
Controls	14.5

* The length was measured from the tip of the nose to the beginning of the tail at the end of the experiment.

The average weight per rat at the start of the experiment was 57.8 Gm.

The animals fed irradiated ergosterol actually lost weight during the experimental period. The massive dose of irradiated ergosterol produced an anorexia of such severity as to necessitate the reduction of the dose from 100,000 to 20,000 times the curative dose at the end of two weeks. At the same time the volume of oily solution of irradiated ergosterol given with the food

TABLE 3.—*Blood Serum Analysis*

	Phosphorus, Mg. per 100 Cc. of Serum	Calcium, Mg. per 100 Cc. of Serum	Cholesterol, Mg. per 100 Cc. of Serum	Total Nitrogen, Mg. per 100 Cc. of Serum	Noprotein Nitrogen, Mg. per 100 Cc. of Serum	Total Protein, Gm. per 100 Cc. of Serum	Albumin Nitrogen, Mg. per 100 Cc. of Serum	Globulin Nitrogen, Mg. per 100 Cc. of Serum	Albumin / Globulin
Irradiated ergosterol	7.6	16.1	114.0	897.0	57.3	5.2	493.0	401.0	1.2
Cod liver oil	7.4	13.9	.....	1283.0	70.8	7.5	593.0	619.0	0.95
Controls	7.4	10.9	.....	.....	....	...	.....	.....	....

was made equal to the volume of cod liver oil. The rate of growth of the ergosterol group was less than that of either of the other two groups, and the animals appeared to be much less active than even the controls.

The blood analyses showed a calcium concentration which was more than 50 per cent greater than normal and about 24 per cent (3 mg.) greater than the calcium concentration of the animals given cod liver oil. The cholesterol content of the blood remained about normal. The protein concentration of the serum of the animals given irradiated ergosterol was less than that of the animals given cod liver oil, while the albumin globulin ratio was higher than that of the animals fed cod liver oil.

The bones of all the animals appeared healed. A detailed report will follow later.

The dose of irradiated ergosterol used was far in excess of the maximal dose used in the treatment of infantile rickets.

The results indicate that harm may result from excessive doses of irradiated ergosterol in rachitic animals.

8. Shear, M. J., and Kramer, Benjamin: J. Biol. Chem. **74**: 9, 1927.

CONCLUSIONS

1. Massive doses of irradiated ergosterol fed to albino rats caused anorexia and loss of weight with impairment of the general physical condition and the rate of growth.

2. The blood calcium concentration was 50 per cent higher than that of the control animals and those fed cod liver oil, while the phosphorus remained approximately the same.

3. The protein concentration of the serum of the animals given ergosterol was less than that of the animals given cod liver oil, while the albumin globulin ratio was higher than that of the animals fed cod liver oil.

EARLY SYPHILITIC LESIONS OF THE CERVIX *

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CHICAGO

A series of cases is presented here to show the percentage of moist lesions of the female genitalia that may be due to syphilis. Moreover, it is here demonstrated that the cervix uteri is a common site for the primary and early secondary lesions of syphilis.

The incidence of syphilis in the female is believed generally to be less than the incidence in the male, but Warthin [1] has recently directed attention to the fact that many women are syphilitic though not giving clinical manifestation of the fact, especially during the child-bearing period, and that, therefore, a great number of female spirochete carriers are undetected.

There are specific difficulties encountered in making an early diagnosis of syphilis in the female. The conformation of the female genitalia is such that the initial lesion is very easily obscured in the folds of the labia or in the creases made by the carunculae myrtiformes. If the lesion is on the vaginal portion of the cervix, it is not likely to be discovered except on speculum examination by the physician, for which there may not be any occasion at the time the chancre is "in bloom." Warthin found that diffuse granulomatous infiltrations without much induration are the only local lesions when the spirochete makes its entry by way of the mucosa of the cervical canal or of the uterine wall, and, of course, these infiltrations could be demonstrated only by microscopic examination after laparotomy or autopsy.

The primary lesion in the female usually lacks the induration expected as one of the characteristic features of the chancre. Frequently it is merely an insignificant, linear abrasion of the mucosa and heals

* From the Venereal Disease Division, Municipal Contagious Diseases Hospital.

1. Warthin, A. S.: Outline of the Sex Differences in the Pathologic Picture of Syphilis, Am. J. Obst. & Gynec. **15**: 595 (May) 1928.

without leaving a trace of itself. Induration in the case of the cervical chancre, even if present, is of little practical aid because of its inaccessibility for palpation.

The cases presented here were studied for the purpose of diagnosis of moist lesions in a group of hospital patients. The study covers a period of eighteen months, during which time 1,284 patients were examined. All were women of questionable morals, and the average age was 21 years. Of these women, 233 exhibited visible moist lesions, which provided the basis for this report; 126 were white and 107 colored. Many of the patients were unaware of the presence of the lesion; others gave a history of having had the lesion from a few days to one or two weeks. Consequently, the history of the duration of the lesion prior to hospital admission was disregarded.

TECHNIC

As the patients were quarantined and treatment for syphilis, if present, required detention for six weeks or longer, an accurate diagnosis was necessary, and it was essential that all clinical observations be confirmed by serologic tests and dark field examination. No treatment was given until a positive diagnosis was established, except as follows:

Patients received douches of physiologic solution of sodium chloride three times daily, and on each of three successive days blood was drawn for Wassermann tests. The specimens were placed in aseptic, dry test tubes and reached the laboratory from one to two hours after withdrawal. A discrepancy in the results of any series of three blood tests was considered sufficient reason for repeating the Wassermann tests on three additional successive days. One Wassermann test is inadequate for diagnosis because of errors, which occasionally occur in the complement fixation test even in the hand of the most skilful technician, and because of occasional false positives.

The moist lesion was examined daily, and, on each of three successive days, after washing with physiologic solution of sodium chloride, a drop of serum was expressed for examination on the dark field. All the examinations were made by the same technician. The series of three tests was not completed if a positive dark field was secured on the first or second day.

We suspected and examined ninety-one lesions of the cervix, in the manner described. In nine of these patients, four with negative Wassermann reactions and five with positive Wassermann reactions, the dark field was positive. Of these nine cases in which dark field examination was positive, six exhibited well circumscribed, punched out lesions, with hyperemic edges sloping down to a smooth, glistening floor covered with an adherent exudate. Only one of the six patients had a negative Wassermann reaction. All six lesions were on the anterior lip of the cervix and were separated from the external os by healthy tissue, except one which was on the superior aspect of the external os and so much resembled a cautery wound that, at first, we hesitated to consider syphilis. The other three cases showing a positive dark field did not exhibit a circumscribed, punched out lesion, but the cervix was edematous with numerous punctate foci of breaks in the continuity of the mucosa. The Wassermann reaction was negative in all three of these cases, which suggests that the edema of the cervix precedes the formation of a definite lesion. In one of the latter three cases, seven consecutive dark field examinations were required. The sixth test was positive, and a seventh was made for the purpose of corroboration.

Thirteen of the cervices examined gave a persistently negative dark field, but the Wassermann reaction on three successive days was positive in each. The cervices did not show circumscribed lesions but were eroded and fissured. These thirteen cases were diagnosed and treated as syphilis on the basis of the serologic test, but we are unable definitely to relate to the disease the cervical lesions for which the patients were sent to the hospital. A positive Wassermann reaction does not warrant the conclusion that a coexisting moist lesion is syphilitic.

One patient included in the sixty-nine with nonsyphilitic cervical moist lesions exhibited an ill defined ulceration, 0.75 cm. in diameter, superimposed on the anterior lip of a generally edematous, eroded cervix, which bled profusely on being touched. Three consecutive dark field examinations were negative, and of the six Wassermann tests made, five were negative and one was 1 plus. The Kahn test was negative. On the basis of the clinical observations, the patient was placed on intensive therapy. The cervical tissue promptly regained a normal aspect after three intravenous injections of neoarsphenamine, and the general well being of the patient showed marked improvement after the six weeks of treatment. We consider this a case of early syphilis but have not included it in our list of positive cases because we lacked laboratory confirmation of the clinical diagnosis.

Observations in Ninety-Nine Syphilitic Lesions

Positive Dark Field Negative Wassermann	Positive Dark Field Positive Wassermann	Negative Dark Field Positive Wassermann	Per Cent Positive Wassermann	Per Cent Positive Dark Field	Per Cent Positive Dark Field and Positive Wassermann
18	48	33	81.8	66.6	48.4

Site of Lesion	Diagnosed Syphilis on Basis of: Positive Dark Field Negative Wassermann	Positive Dark Field Positive Wassermann	Negative Dark Field Positive Wassermann	Non-syphilitic
Labia, majora and minora	6	19	11	25
Cervix uteri	4	5	13	69
Vaginal orifice and fourchette	7	8	1	21
Anus	1	12	4	7
Periurethral	..	1	2	6
Clitoris	..	1	..	1
Buttocks	..	..	..	2
Thigh, inner aspect	..	..	..	1
Inguinal	..	..	..	1
Mouth	..	1	2	1
Nose	..	1	..	..
Total	18	48	33	134
	99 (42.49%)			57.51%

It would seem that the number of women with syphilis in whom the early lesions appear on the cervix uteri places the responsibility for diagnosis in the hands of the gynecologist and makes it imperative that syphilis be suspected in any cervical lesion not definitely diagnosed. Diagnosis from the appearance of the cervix alone is not possible; the dark field and serologic tests are required. Stookey[2] maintains that generalized edema of the cervix is a common manifestation of primary syphilis, and analogous to the edema induratum without ulceration of the mucosa seen in the male. We have noted edema of the cervix in three of our four cases of primary syphilis, but there was associated one or more erosions of the cervical mucosa varying in size

2. Stookey, P. F.: Primary Manifestations of Syphilis in Women, Am. J. Syph. 11: 68-72 (Jan.) 1927.

from a pin point to a few millimeters in diameter. Moreover, it should be borne in mind that the consistency of the cervix varies in different women, and that it is modified by the menstrual cycle, pregnancy, chronic inflammatory processes, old lacerations and neoplasms. The chancre may be superimposed on a cervix showing any one of these conditions. The satellite inguinal adenopathy, one of the constant guides in the diagnosis of lesions of the external genitalia, is absent in the cervical lesions, because the cervical lymph glands drain into the iliac and hypogastric group of lymphatic glands, which latter, obviously, are not palpable. Inguinal adenopathy may be present in cervical lesions as a result of the anastomosis of the lymph channels of the cervix and uterus with those of the round ligament, but we have not noted such instances in the series of cases presented here. Finally, the painlessness and lack of secretion in the cervical lesion further tend to conceal its presence, and the even temperature of the vagina, plus an absence of friction and thermic and chemical irritation such as is present on the external genitalia, are factors favoring the speedy resolution of the lesion.

Finally, it should be stated that the demonstration of the spirochete is a prime requisite for diagnosis, but it cannot be too strongly emphasized that serologic tests as well as dark field examinations should be made to confirm the clinical diagnosis. Had we relied only on the dark field test we would have failed to detect syphilis in 33.4 per cent of the cases, and, similarly, had we relied only on the Wassermann test we would have failed to detect syphilis in 18.2 per cent of this series of cases. These figures closely approximate the figures given by Willett and Nagle[3] for the Kahn test in a group of similar cases.

CONCLUSIONS

1. Every moist lesion on the female genitalia should be considered a potential chancre or early secondary lesion until, by microscopic and serologic tests, syphilis has been ruled out. A most painstaking search for the lesion is essential on the part of the clinician, and the diagnosis should be supported by carefully performed dark field and serologic tests.

2. The cervix uteri should be carefully inspected by the gynecologist as a possible site for the moist lesion. Ninety-one of 233 women had so-called erosions of the cervix. The secretion from the lesions of nine of these ninety-one, or 9.89 per cent, four of whom gave a negative Wassermann reaction (primary syphilis), and five a positive Wassermann reaction (early secondary syphilis) was positive on dark field examination. Thirteen others, or 14.2 per cent of the ninety-one, had suggestive erosions on the cervix, and, while the dark field test was negative, the Wassermann reaction was positive. It was the appearance of the cervix in these thirteen cases that led to the diagnosis, though the lesion per se could not be proved to be syphilitic.

3. Two hundred and thirty-three moist lesions were examined and ninety-nine, or 42.49 per cent, were treated as syphilitic. In 66.6 per cent the diagnosis was established by means of a positive dark field and in 81.8 per cent by means of a positive serologic test. The number of patients in whom both dark field examination and Wassermann reaction were positive was forty-eight, or 48.4 per cent.

25 East Washington Street.

3. Willett, J. C., and Nagle, Nathan: Kahn Test in Primary Syphilis, J. A. M. A. **90**: 1189 (April 14) 1928.

INTESTINAL PARASITISM IN PHILADELPHIA*

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AND
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PHILADELPHIA

The determination of the presence of intestinal parasites in the study of disorders of the intestine as a routine procedure in the tropics is only natural when one considers that in these countries practically 90 per cent of persons in apparently good health have some kind of parasite in the intestine, and nearly 100 per cent of those who are ill harbor parasites.

Torres in Bahia, Brazil, found infestation in 95.45 per cent of apparently normal persons and in 98, 99 and even 100 per cent of those who entered hospitals. For the sake of brevity, a detailed description of the observations by other investigators in tropical countries will not be given here because it is readily understood that the same percentages apply, more or less, to Central America, Mexico, the West Indies, tropical Africa and other countries with more or less identical climatic conditions. It may be emphasized, however, that this common, and to some extent natural, abundance of intestinal parasitism in tropical countries has contributed in not a small degree, for some years, to a disposition to regard these parasitic disturbances as of secondary importance in the study of intestinal disorders in Northern countries. But it may be remembered in this connection that the colonization of the tropics from the North, the emigration of the inhabitants of the tropical regions and the use of modern means of transportation has, as a natural consequence, disseminated these diseases to all latitudes.

It may be emphasized that parasitic disorders, contrary to bacterial diseases such as diphtheria, typhoid and tetanus are usually devoid of acute symptoms and therefore give no warning of the danger. These facts have contributed to some extent to a tendency to minimize the importance of the disturbances, or even to consider them as innocuous, the fact being neglected to some extent that they are in themselves the cause of the specific morbid condition in the host, and furthermore that they, in addition, are potent predisposing factors to secondary bacterial infection and grave organic and metabolic disturbance, the tragic warning of which, as readily understood, often comes too late, but which an early diagnosis might have prevented.

Fortunately, the realization of these factors in the last decade has naturally stimulated the study of human parasitology and tropical diseases in some universities and medical schools of the North as a part of the general medical education, and likewise has awakened the interest of the medical profession in general, as may be seen from the frequent requests nowadays by some clinicians for the examination of the feces as a routine procedure in the study of gastro-intestinal disturbances —a logical procedure, if one takes into consideration the fact that more than two thirds of the parasites of man are inhabitants of the intestine.

For some years we have been impressed with the rather unexpected occurrence of parasites in the intestine in cases suspected of being nonparasitic disorders. One or two of these cases may be briefly cited:

A patient, referred to us by Dr. L. Napoleon Boston, had been treated for several years for tuberculosis of the intestine,

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until the examination of the feces showed the condition to be amebic dysentery. It may be mentioned in passing that this patient had never been in the tropics but had lived all his life in Philadelphia and its vicinity.

Another rather interesting case, which was diagnosed as pulmonary tuberculosis, was that of a young man, markedly emaciated, cachectic and anemic, who was advised to go to a sanatorium. The examination of the feces showed this to be a case of amebic dysentery of seven years' duration.

The proper treatment of both patients restored them to health in a few weeks and they have remained in good health for the past four years. Our paper would be rather too lengthy were we to comment further on the many patients who have come under our observation with indefinite intestinal disturbances of such obscure diagnosis as gastritis, duodenal ulcer, general enteritis, appendicitis and mucous colitis, in whom the examination of feces revealed the presence of *Giardia,* amebas, hookworm, *Oxyuris* and tapeworm. But it may be of more interest, perhaps, to mention the experiences of others. Dr. Octavio Torres [1] refers to some cases as follows:

We will here cite a case that we deem very instructive and interesting, and, if it had not been for the microscopic examination of the feces and the elimination of the parasites, the patient would have died.

C. J., native of Maranhão, physician, suffering for a long time from gastro-intestinal disturbances, which caused a progressive loss of weight, since he fell from 73 Kg. to 57.

He consulted all the local doctors, and each one made an exquisite diagnosis. Growing more emaciated, he decided to come to Bahia, where he was examined by most of our physicians, but with no better luck than before. Some requested an examination of the feces, but only for the purpose of learning the action of the intestinal juice on the food. The diagnoses varied among enteritis, gastro-enteritis, entero-gastrocolitis, mucomembranous enteritis, chronic typhlitis, neurasthenia, etc.

He remained free from beriberi, and he went back to Maranhão in the same condition as when he arrived. He continued to suffer from the same disturbances, intestinal pains not well localized, nausea and, sometimes, vomiting; diarrhea, bad digestion of all foods. He did not derive the slightest benefit from medication.

A short time after he returned to Maranhão he passed some ascarides, and he took some vermifuge and passed an uncountable number of ascarides. He again took the vermifuge, and he soon regained his original weight.

We might relate many other observations besides this one, in which a simple examination of the feces would clear up all doubts, and make the diagnosis clear.

In this connection we may add our observations of one or two more cases. In 1902 one of us, while in Central America, had the following experience:

About 11 p. m. a mother brought her child, a girl, about 1 year old, in a state of collapse and with death apparently impending. A brief examination showed symptoms of intestinal obstruction caused by an indefinite kind of tumor about the size of an orange on the right side of the abdomen; on gentle manipulation, however, the swelling gradually disappeared, to be reformed again in rather irregular lumps in another part of the abdomen. Ascariasis was suspected and santonin and castor oil were administered. The next morning the little patient had completely recovered after the discharge of more than 500 roundworms.

Dr. R. Gonzales of Venezuela, in his work on "The Differential Diagnosis Between Appendicitis and Bilharziosis," cites several erroneous diagnoses due to a lack of examination of the feces:

In one of these cases an eminent surgeon performed a laparotomy for the purpose of removing the appendix, and when he found the appendix perfectly healthy he decided to remove the right ovary, which was condemned by default as being responsible for the pains from which the patient suffered.

In another case three internists and two surgeons diagnosed appendicitis, and an operation was fixed for the next day. In the evening, however, the diagnosis of intestinal parasitism, made by another physician, stopped the operation, and it is now seven years since that appendix has been awaiting the execution of that operative sentence.

In two other cases surgical intervention was decided on, as in the others, but an opportune coprological examination commuted the sentence to evacuation of the worms that simulated appendicitis.

Finally, brief mention may be made of a medical case referred to one of us (de Rivas) by Dr. H. L. Bockus with the correct diagnosis of ulcer of the duodenum:

A physician who had been suffering from gastro-intestinal disturbances for some years was markedly emaciated and anemic. Examination of the feces showed the presence of hookworm and after a single treatment by the intra-intestinal thermal method, which consisted in the intraduodenal application of hot salt solution followed by a discharge of several specimens of adult parasites, the patient made a rapid recovery, gaining 15 pounds (7 Kg.) in the short space of two weeks. He has remained in good health ever since.

It may be added, in this connection, that in our experience we have often observed a general gastro-intestinal disturbance in children accompanied by emaciation, indigestion, irregularity of the bowels with occasional diarrheas, general malnutrition and retardation in growth and development which simulated a generalized gastro-enteritis. A single examination of the feces in several of these cases has shown the presence of *Giardia,* which in our opinion was the cause of these conditions, as proved by the fact that, after removal of the *Giardia* by the intra-intestinal thermal method, the patient rapidly improved and the gastro-intestinal symptoms disappeared.

The consideration of the importance of intestinal parasitism in general medicine and surgery led us to the present investigation.

GROUP OF PATIENTS SELECTED

The subjects selected for the investigation were hospital patients, which included outpatients and hospital patients of the Polyclinic Hospital, the Philadelphia General Hospital, the Mary Drexel Hospital, the Presbyterian Hospital, and some of our own patients.

The patients from the Polyclinic Hospital were chiefly outside patients and the material examined was usually not very fresh. In the other hospitals, as well as in our own cases, the material was examined as soon as possible, usually not more than from three to six hours after being passed. In all, examinations were made in 823 cases: 275, patients at the Polyclinic Hospital; 237, patients at the Philadelphia General, Mary Drexel Home and Presbyterian hospitals; 311 our own patients. All those from the Polyclinic Hospital were adults, while those from the other hospitals were children of from 1 to 11 years of age; our own patients varied in age from 1 to 70 years.

TECHNIC FOR THE EXAMINATION OF FECES

In all cases the simple fresh cover glass preparation and also the concentration method of one of us (de Rivas) was used. With the latter, a small portion of material is first softened when necessary and suspended in an excess of a 5 per cent acetic acid solution

1. Torres, Octavio: Contribution to the Study of Intestinal Helminthiasis in Bahia, Tr. Am. Soc. Trop. Med., 1917.

in a test tube. After the material is thoroughly shaken, it is filtered through a layer of gauze and the filtrate is collected in an ordinary centrifuge tube, so as to have the tube about one-third full. To this is added an equal volume of ether, and after the resulting emulsion has been thoroughly shaken it is centrifugated for from three to five minutes. By this procedure the mixture is separated into four layers from above down as follows: the ethereal extract which forms the topmost layer; the detritus plug consisting of soap and coarser particles which forms the second layer; the acid solution below this, and finally a scanty sediment at the bottom. The three upper layers are poured out, leaving the sediment attached to the bottom of the tube; this is collected in capillary pipets and examined under the microscope as with fresh coverglass preparations. This method gives a very high concentration of the ova and cysts of the parasites, which in our experience was found to be at least 10 to 1, or even as high as 500 to 1.

In addition to this procedure it was thought advisable at the beginning of this investigation that artificial cultures be made of the material with special reference to flagellate parasites, which work was made possible by the cooperation of Dr. Mary J. Hogue. The material was also stained by special methods and examined for protozoa, which work was undertaken by Dr. D. H. Wenrich. Many specimens were thus examined, but because of the time consumed by the technic, and since the observations obtained by the latter methods corresponded essentially with the results obtained by the fresh cover glass preparation and the concentration method, they were discontinued.

SUMMARY OF THE RESULTS

The patients from the Polyclinic Hospital, as stated, 275 in all, were adults; those from the Mary Drexel Home and Presbyterian Hospitals, 237 in all, were children from 1 to 11 years of age. This group of patients, a total of 512, represents those examined indiscriminately without regard to intestinal disorders; in other words, they represent the average of general and dispensary patients. The remaining group of 311 representing our own patients were more or less affected with intestinal disorders. The results obtained in the total 823 patients examined were as follows:

TABLE 1.—*Kinds of Parasites Found in Hospital Patients*

Parasite	Number Cases	Per Cent
Giardia	29	46.0
Amebas	22	35.0
Chilomastix	3	4.7
Tricocephalus	3	4.7
Blastocysts	3	4.7
Hymenolepis nana	1	1.5
Ascaris	1	1.5
Trichomonas hominis	1	1.5

Of the 275 patients from the Polyclinic Hospital, infestation was present in nine, or 3.27 per cent, the parasites consisting of *Giardia,* five cases; *Dibothriocephalus latus,* two cases; and *Trichocephalus,* two cases.

Of the 237 patients from the Philadelphia General, Mary Drexel Home and Presbyterian hospitals, there were sixty-three, or 26.5 per cent, with parasitic infestation. The kinds of parasites found are listed in table 1.

Since these were all children, it may be of interest to note that the feces of two children under 1 year of age, one 4 and the other 11 months old, respectively, were positive for *Giardia.* From 1 to 5 years there were twenty-three infested children, from 6 to 10 sixteen, and from 10 to 12 five. Of those in which no age was given there were seventeen cases.

Our own patients were affected more or less with some kind of intestinal disorder. Of 312 patients, 121, or 38 per cent, were found to be infested, the type of parasite found being listed in table 2.

TABLE 2.—*Type of Parasite Present in Private Patients*

Parasite	Number Cases	Per Cent
Amebas	63	52.0
Giardia	25	20.6
Tricocephalus	17	14.0
Hookworm	6	4.9
Ascaris	3	2.4
Tapeworm	4	3.3
Oxyuris	1	0.7
Trichomonas	1	0.7
Chilomastix	1	0.7
Blastocysts	1	0.7

GENERAL CONSIDERATIONS

This prevalence of intestinal parasitism in Philadelphia might appear rather unusual were it not for the fact that this more or less corresponds with the observations of other investigators, such as Smithies, who arrived at about the same results in Chicago; other workers in San Francisco have found the percentage to be much higher, about 61 per cent, in that city.

This can be easily explained if one considers that the frequency of parasitic infestation is more or less in proportion to the ingress of population, especially in the tropics or subtropical countries, and with this in mind it may be readily understood that if similar investigations were carried out in the city of New York, where immigration from the tropics is especially high, the percentage of intestinal parasitism probably would be found to exceed the percentages here reported as occuring in Philadelphia.

We know that poor hygienic conditions, such as exist in some parts of the tropics, added to the climatic condition prevalent in those regions which are favorable to the life of parasites, is naturally an important contributing factor in infestation, but if these factors were all, there should be little or no danger of infestation in the temperate zones. The fact should not be overlooked, however, that contact is an important factor in the transmission of these diseases; in other words, it is not only public hygiene, including proper sewage disposal and purification of water, but also the more or less intimate contact with carriers, that should receive consideration. Keeping this point in mind, it can be readily understood that in the prevention of parasitic infestation personal hygiene should receive first consideration, for, as was often observed by us, among the better classes the cook, the nurse, the maid, the chauffeur, the butler and other persons more or less in intimate association with the family were found, in the majority of cases, to be the source of infection in Philadelphia, especially among children.

CONCLUSIONS

1. The general belief that parasitic disorders are exotic diseases and endemic to the tropics no longer holds true, as, with emigration and the modern means of transportation, they have been disseminated to all latitudes of the earth.

2. In view of this, one should always keep in mind the fact that in the study of any case the possibility of a parasitic infestation should not be neglected, more especially in cases of gastro-intestinal disorders.

3. The examination of the feces as a valuable aid in the simplification of the diagnosis should receive consideration, and we believe that it should rank in importance as a routine procedure with the Wassermann reaction, the examination of the urine and other laboratory tests.

4. Finally, with the realization of the importance which parasitic and tropical diseases in the North have come to acquire of recent years, there should be a greater effort directed to the studies of these diseases in medical schools to impress the future generation with the importance of this heretofore more or less neglected branch of medical science.

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LIVER EXTRACT IN THE TOXEMIA OF PREGNANCY *

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The decade just past (1917-1927) has been marked by an intensive drive to establish prenatal clinics, which in the main have been efficiently operated by competent obstetricians, have materially reduced the accidents of labor, and are showing some reduction in the incidence of infection and eclampsia. A total of 4,878 women died of eclampsia in the year 1927, or one death in every 600 births.

Unless we can view with complacency the 4,878 annual deaths from eclampsia (puerperal albuminuria and convulsions), it would seem essential that each suggested line of treatment, if tried, be reported in sufficient detail to enable other workers to judge its merits and adopt it as a basic treatment, supplemented, when necessary, by such symptomatic measures as may be indicated, or, on the contrary, discard it as a failure and search along more promising lines.

Some obstetricians now empty the uterus by a major surgical procedure in spite of the grave physical condition of the patient. Others content themselves with the Stroganoff treatment, plus their individual modification, depending somewhat on the report of a few apparent successes following the use of drugs frequently detrimental to the individual. It is the universal experience of obstetricians that either of these methods of treatment leaves much to be desired.

The only point of agreement among the different schools is that eclampsia is caused by some unknown toxin of obscure origin usually causing some premonitory symptoms, such as systolic blood pressure of 140 mm. or above; any sudden rise from the patient's normal blood pressure; albumin, casts or both in the urine; headaches with sudden onset; epigastric pain; edema (of toxic origin); diminished urinary output; ocular symptoms; eyeground abnormalities; nervous irritability and abnormal chemical reactions of the blood (of little aid unless accompanied by symptoms). These symptoms, given in the order of their importance, may require an entire rearrangement even to the elimination of some, the addition of others now unknown to us, or the discovery in the blood or elsewhere of the specific toxin, a method of measuring its quantity or virulence, and the ability of the particular individual to neutralize or eliminate it.

While the problem of the oncoming convulsions may ultimately reach the ideal simplicity of being predictable through definite changes in the chemical constituents of the blood, urine or other body fluids, so far our laboratory observations have failed to give us this much desired information, making it necessary for us to rely on the well known clinical manifestations, while fully realizing that albuminuria and casts may precede blood pressure elevation or that the converse may be true. The quantity of albumin in the severe case may be relatively small, or the mild case may show a concentration which causes the urine to boil solid. We have seen fatal cases of eclampsia in which the blood pressure never exceeded 135 mm., and prompt recoveries with blood pressure of 260 mm., but the symptom complex previously stated gives us a working basis, guides us in our treatment, and assists in a prognosis.

In contradistinction to the present state of confusion in laboratory observations we have the ever present liver necrosis found at autopsy, relatively mild in some fatal cases, and in others of such severity that it would seem inconsistent with life, even if uncomplicated by impairment of other organs.

If, perchance, the liver has a certain neutralizing function, which could be conserved by the addition of liver substance, however given, it would make little or no difference regarding the nature or source of the toxic agent of eclampsia provided the vital capacity of the liver could be increased at will to meet the emergencies of the situation. With this thought as a background we began in October, 1926, the use of heparmone in the treatment of preeclamptic and eclamptic cases. Our material was secured through the clinics of the Elizabeth Steel Magee Hospital, the University Maternity Dispensary, the Presbyterian Hospital and through referred cases, all of which were accepted without regard to the existing condition and treated. The present report represents the results obtained to date.

We feel that the blood pressure furnishes the best dividing line, and while any sudden rise of blood pressure in the pregnant woman should excite suspicion, we have arbitrarily eliminated from this report all those showing a systolic blood pressure below 140 mm. Of those eliminated many were treated, practically none showing an advancing pressure; all were free from convulsions and were permitted to continue their pregnancies.

For comparative purposes we have classified the treated preeclamptic cases as follows:

1. Mild cases:
   (*a*) Systolic blood pressures do not exceed 150 mm.
   (*b*) Urine usually is free of albumin, or may contain a slight amount.
   (*c*) Mild subjective and objective symptoms are present.
   (*d*) These cases are almost all of the hepatic type.
2. Moderate cases:
   (*a*) Systolic blood pressures range from 150 mm. to 175 mm.
   (*b*) Urine usually contains moderate amount of albumin or is free from albumin.
   (*c*) Moderate subjective and objective symptoms are present.
   (*d*) These cases are mostly of the hepatic type, but some are of the nephritic type.
3. Severe cases:
   (*a*) Systolic blood pressures exceed 175 mm.
   (*b*) Urine usually contains moderate to large amount of albumin, but occasionally is free of it.
   (*c*) Symptoms are usually pronounced.
   (*d*) These cases are mostly of the nephritic type, but some are hepatic or a combination of the two.

* From the Department of Obstetrics, University of Pittsburgh.
* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 14, 1928.

Individual modifications may at times be necessary and symptomatic treatment may be supplemented, but in general our treatment has been as follows: In the mild cases, 10 cc. of heparmone was given weekly in the form of intramuscular injections; in moderate cases, 10 cc. was given two or three times weekly, and in the severe cases 10 cc. was given two or three times a day until the patient was delivered. In this series the diet was not restricted. No other medication was used.

The total preeclamptic cases studied now number 255, of which we placed 101 in the mild group, ninety-five in the moderate group, and fifty-nine in the severe group. In this series there were eighty-four patients with nephritic toxemia, who, while not showing any improvement in the blood pressure or urinary condition, were nevertheless allowed to continue their pregnancies until they went into labor spontaneously.

As would be expected in the treatment of any condition, the response varies with the severity of the toxemia. Even in the severe cases some improvement occurred without supplementary or symptomatic treatment, while in the moderately severe or mild cases, some were returned to a practically normal state.

There are two mild reactions which may occur: (1) moderate headache for about one hour after the injection, or (2) flushing of the skin and a feeling of warmth. One anaphylactic reaction occurred when 35 cc. was given intravenously to a patient in whom an unsuspected sensitization to the drug existed.

Many cases when first seen are in the severe group, and are so treated, afterward dropping to moderately severe or even mild toxemias, when they are treated accordingly. While the shifting from group to group is largely from the severe to the mild, an occasional case may show the reverse reaction. Four patients have developed eclampsia, one from the moderate group and three from the severe group. One fulminating toxemia proved fatal, the patient dying within ten minutes after the first convulsion.

REPORT OF CASES

CASE 1.—A woman, attending the heparmone clinic for two months, showed a decrease in blood pressure from 210 systolic and 120 diastolic mm. of mercury to 160 systolic and 92 diastolic. The urine contained 0.5 Gm. of albumin. She entered the hospital for cesarean section the next day. The pelvis was contracted. The patient received 10 cc. of heparmone, and fourteen hours later developed two convulsions and died of acute pulmonary edema during the convulsion, before anything could be done. A cesarean section was performed post mortem and a living baby delivered, which had convulsions for twenty-four hours. Heparmone, 1 cc., three times a day, was given to the baby. The urine of the baby contained 1.7 Gm. of albumin, casts and red blood cells; the next day it contained 0.2 Gm. of albumin. Autopsy of the mother showed only cloudy swelling of the liver and kidneys with profound edema of the lungs.

CASE 2.—A woman entering the hospital with a blood pressure of 210 systolic and 120 diastolic and 5 Gm. of albumin in the urine was treated with heparmone for fourteen days, the blood pressure gradually dropping to 160 systolic and 85 diastolic. No heparmone was given for two days, and the blood pressure rose to 200 systolic and 120 diastolic. Heparmone was given again for a week, with a decrease in blood pressure to 160 systolic and 88 diastolic, and in albumin to 3 Gm. Delivery was spontaneous after six hours of labor. The patient went into shock at the time of delivery. Intravenous injections and stimulants were used. The patient died five hours later. Autopsy was not obtained.

CASE 3.—In a woman attending the blood pressure clinic and receiving 10 cc. of heparmone weekly, the blood pressure dropped from 160 systolic and 80 diastolic to 140 systolic and 72 diastolic; the urine contained a trace of albumin and of sugar. The patient entered the hospital in labor, was delivered, and went into coma. A blood sugar of 500 mg. was reduced to 400 with insulin, and the patient died.

CASE 4.—A woman entering the hospital after thirty-two weeks' gestation showed a blood pressure of 162 systolic and 88 diastolic, and a urine containing 1.5 Gm. of albumin. The blood pressure dropped to 138 systolic and 74 diastolic and was kept there with heparmone. After one week the patient developed large abscesses of the right arm and a septic temperature. One week later she went into labor but made no progress in twenty-four hours. A bag was inserted and the patient delivered, with the temperature still septic. The patient died. Autopsy revealed hemolytic streptococci from the heart blood, cloudy swelling and moderate necrosis of the liver, and chronic glomerular nephritis.

The number of patients who had convulsions when first seen has now reached a total of forty-three (June 4, 1928). The first fifteen cases were reported in a previous publication,[1] and we now report all additional cases.

CASE 16.—Mrs. E. H., aged 29, a secundipara, sent to the hospital, Aug. 31, 1927, by her physician on account of sudden rise of preeclamptic symptoms, showed on entrance a blood pressure of 192 systolic and 100 diastolic, and complained of severe headache, epigastric pain and nervous irritability. There was no edema. A convulsion occurred, followed by another in fifteen minutes. Heparmone in a dosage of 20 cc. was given and repeated every three to four hours. The blood pressure dropped to 128 systolic and 68 diastolic and was kept there. The patient was delivered spontaneously four days later of a living child. The urine on entrance to the hospital contained 1.5 Gm. of albumin; when the patient left the hospital fourteen days later it contained only a trace.

CASE 17.—Mrs. E. C., aged 22, a primipara, entered the hospital, Sept. 15, 1927, with a blood pressure of 184 systolic and 124 diastolic, having had one convulsion, followed by another after admission to the hospital. The urine contained 20 Gm. of albumin, casts and red blood cells. There was slight edema. The patient was in coma for a short while only. The blood pressure was kept around 150 systolic and 100 diastolic by 10 cc. of heparmone every fifteen to thirty minutes for twelve doses. The patient was delivered the next day by version extraction; the cord was prolapsed. When she left the hospital twenty days later the urine contained only a trace of albumin and no casts.

CASE 18.—Mrs. M. P., aged 18, a secundipara, delivered at home, Nov. 5, 1927, by her physician, had four or five convulsions after delivery and was sent to the hospital in coma. The blood pressure was 172 systolic and 96 diastolic, and there was slight edema. Twenty cubic centimeters of heparmone was given intravenously, and the blood pressure dropped to 138 systolic and 86 diastolic. The urine contained 1 Gm. of albumin, casts and red blood cells. Ten cubic centimeters of heparmone was given every hour for four doses, and the blood pressure was kept around 130 systolic and 90 diastolic for the rest of the patient's stay in the hospital. There were no more convulsions.

CASE 19.—Mrs. W. W., aged 17, a primipara, entered the hospital, Dec. 4, 1927, in labor. Caudal anesthesia was given at 2:40 p. m. and a convulsion followed, thought to be due to procaine hydrochloride. Another convulsion occurred at 3:40 p. m. and at 6:15 p. m. It was learned that the patient had had high blood pressure during pregnancy. Heparmone, 10 cc., had been given two weeks previously, but the patient did not come back for further treatment. The urine contained 2 Gm. of albumin and red blood cells. The blood pressure was 162 systolic and 100 diastolic, and was kept there by 10 cc. of heparmone given every thirty to forty-five minutes. There were no more convulsions. The patient signed a release from the hospital after seventeen days, at which time the urine contained only a trace of albumin.

1. Miller, H. A., and Martinez, D. B.: Am. J. Obst. & Gynec. 14:165 (Aug.) 1927; Atlantic M. J. 31:141 (Dec.) 1927.

CASE 20.—Mrs. A. D., aged 17, a primipara, seen at the clinic, Nov. 16, 1927, with a blood pressure of 158 systolic and 98 diastolic, and albumin and casts in the urine, was advised to come to the high blood pressure clinic but refused treatment. December 14, she entered hospital in coma and had two convulsions. The blood pressure was 184 systolic and 120 diastolic. Twenty cubic centimeters of heparmone was given intravenously every fifteen to thirty minutes for five doses, and then 10 cc. every hour for four doses. The blood pressure was kept around 150 systolic and 100 diastolic. The urine contained 20 Gm. of albumin, casts and red blood cells. There was no edema. Coma lasted one hour after the patient's entrance to the hospital. The urinary output increased from 5 cc. to 30 cc. an hour. Six days after her entrance to the hospital, the urine contained only a trace of albumin. The patient was delivered of a normal girl on the day following the convulsion.

CASE 21.—In a patient entering the Citizens General Hospital, New Kensington, Dec. 14, 1927, at 6:30 p. m., the history was unimportant except for frequent attacks of cholelithiasis requiring morphine. Six convulsions were followed by three more after the patient's admission to the hospital, the last one occurring at 10:30 a. m. Heparmone, 10 cc., was given at 11:30 a. m., this dose being repeated every fifteen to thirty minutes until 80 cc. had been given; then 10 cc. was given every hour for seven doses. Physical examination showed marked jaundice and slight edema, a temperature of 102 F., a pulse rate of 90, and respirations of 30. Jaundice seemed to disappear in the course of two hours; the conjunctival jaundice, however, remained. The urine boiled almost solid with albumin and contained red blood cells and casts. The urinary output seemed to increase. The urine on December 19 contained only 0.2 Gm. of albumin. The blood pressure ranged from 144 systolic and 72 diastolic to 182 systolic and 84 diastolic, but was kept around 140 systolic and 75 diastolic until after the convulsions ceased. No convulsions occurred after treatment was started.

CASE 22.—Mrs. E. H., aged 17, a primipara, was sent to the hospital, Dec. 24, 1927, by her physician on account of the urine having boiled solid for the past three weeks, steadily rising blood pressure, generalized edema, blurriness of vision and occipital headache. On entrance to the hospital, the patient was in a comatose condition. The blood pressure was 208 systolic and 112 diastolic. A convulsion occurred shortly after admission. Twenty cubic centimeters of heparmone was given intravenously; then 10 cc. was injected intramuscularly every fifteen minutes until 470 cc. had been given. The blood pressure was kept around 150 systolic and 100 diastolic. The patient had seven convulsions, and came out of coma in five hours. The urine contained 20 Gm. of albumin, casts and red blood cells. The urinary output gradually increased from 3 cc. to 11 cc. an hour. On the sixteenth day only a trace of albumin remained. The second day following entrance to the hospital she was spontaneously delivered of a macerated fetus.

CASE 23.—Mrs. M. S., aged 27, a primipara, after a gestation of thirty-eight weeks, entered Sewickley Valley Hospital, Dec. 31, 1927, at 4:15 p. m., having had two convulsions. The blood pressure was 200 systolic and 110 diastolic; the urine contained 8.5 Gm. of albumin, casts and red blood cells, and there was no edema. The temperature was 100 F., the pulse, 140, and respirations, 24. Morphine sulphate, one-fourth grain (16 mg.) was given and repeated in one hour. We saw the patient at 5:15 p. m. Heparmone, 10 cc., was given intravenously and repeated every fifteen to thirty minutes for twelve doses; then every hour for ten doses. Two more convulsions occurred. The blood pressure was kept around 140 systolic and 72 diastolic, and the urinary output increased from 2 cc. to 40 cc. an hour. The condition improved and the patient was delivered of a normal infant by breech extraction sixteen hours later, under ether anesthesia.

CASE 24.—Mrs. S. S., aged 41, a primipara, entered the hospital, Jan. 26, 1928, at 8:45 p. m., in a delirious, semicomatose condition. Her physician reported that the urine and blood pressure had been normal up to the previous day. On the morning that she was admitted the patient's sight disappeared, and there was occipital headache, and a blood pressure at home of more than 200 mm. There were convulsions at 9:10 p. m. and the blood pressure was 215 systolic and 110 diastolic. Heparmone, 10 cc., was given intravenously; then 10 cc. was injected every fifteen minutes until 600 cc. had been given. The blood pressure was kept around 180 systolic and 90 diastolic. The urine contained 18 Gm. of albumin and casts. Seven days later there was only a trace of albumin. There were four convulsions; the axillary temperature was 102 F. and the pulse 140. The patient was delivered the next evening of a macerated fetus.

CASE 25.—Mrs. A. G. entered Johnstown Hospital at 8 a. m., Jan. 1, 1928, in labor, having had a number of convulsions, and was delivered in three hours, by manual dilation and version extraction, of a stillborn infant. The blood pressure was 160 systolic and 100 diastolic, and the urine showed a heavy cloud of albumin and casts. Saline hypodermoclysis, with 1,000 cc. of solution, morphine sulphate, one-fourth grain (16 mg.), and chloroform were given; the patient was having convulsions and was in a semicomatose condition. Twenty-one convulsions occurred at intervals of four days. Magnesium sulphate was given daily, morphine sulphate, one-fourth grain (16 mg.) when necessary and dextrose intravenously. The patient was delirious. When she was seen by us on the fourth day after the first convulsion, the blood pressure was 200 systolic and 149 diastolic during convulsions. Heparmone, 30 cc., was given intravenously, followed by intramuscular injections of 10 cc. every fifteen to thirty minutes. The condition improved, and ten days later the urine contained only a trace of albumin.

CASE 26.—Mrs. M. P., aged 19, a primipara, entered the Allegheny Valley Hospital, at Tarentum, Feb. 7, 1928, and was delivered by a midwife at 12:05 p. m. Three convulsions occurred before the administration of heparmone was started, after which there were two more convulsions. The blood pressure on entrance to the hospital was 170 systolic and 100 diastolic, and was kept around 140 systolic and 75 diastolic by 10 cc. of heparmone every fifteen to sixty minutes until 250 cc. had been given. The urine contained 18 Gm. of albumin. The urinary output increased after treatment started. Six hours after the last convulsion the blood pressure was 130 systolic and 80 diastolic. The patient had a definite psychosis and her physician gave 3 minims (0.2 cc.) of croton oil and 10 minims (0.6 cc.) of chloral hydrate.

CASE 27.—Mrs. T. R., aged 34, an octipara, after a gestation of thirty-eight weeks entered the Allegheny Valley Hospital, March 3, 1928, at 9 a. m. in a semicomatose condition, having had five convulsions. The blood pressure was 230 systolic and 110 diastolic, and the urine contained 13 Gm. of albumin and casts. A hot pack was applied, and chloral hydrate, 10 minims (0.6 cc.), sodium bromide, 20 grains (1.3 Gm.), by rectum, and croton oil, 15 minims (1 cc.), by mouth, were administered. There had not been any elimination in ten hours. Three more convulsions followed. Heparmone, 10 cc., was given intramuscularly every fifteen minutes for six hours; there was one more convulsion. The blood pressure was kept around 160 systolic and 94 diastolic. The patient was spontaneously delivered of a normal infant at 5 p. m. The urine contained only a trace of albumin four days later.

CASE 28.—Mrs. C. S., aged 16, a primipara, after a gestation of forty weeks entered the Citizens General Hospital, New Kensington, Feb. 25, 1928, in labor, and was delivered spontaneously. Thirty-six hours later convulsions developed. A hot pack was given, and veratrum veride, 15 minims (1 cc.), and morphine, one-fourth grain (16 mg.), in 10 per cent magnesium sulphate solution, were administered. Eleven more convulsions occurred, the last five in twenty-three minutes. The blood pressure was 198 systolic and 50 diastolic. The urine contained 6 Gm. of albumin and casts. The patient was in a comatose condition and the death rattle was present. There was no edema; the axillary temperature was 104 F., the pulse rate, 140, and respiration, 40. Twenty cubic centimeters of heparmone was given intravenously. The blood pressure was 152 systolic and 30 diastolic. By means of 10 cc. of heparmone every fifteen minutes for thirteen doses, and then every two hours, the blood pressure was kept around 140 systolic and

84 diastolic. Five days later the patient developed bronchopneumonia. Routine treatment was given. Ten days later the urine contained a trace of albumin, and the blood pressure was 110 systolic and 70 diastolic.

CASE 29.—Mrs. C. O., aged 28, a primipara, was delivered at home by her physician, Feb. 11, 1928, at 9 a. m. Convulsions occurred two hours later, followed by five more after she entered the hospital. The blood pressure was 165 systolic and 105 diastolic, the temperature 105 F., and the pulse 160. The urine boiled solid with albumin and casts. Twenty cubic centimeters of heparmone was given every hour for five doses. Morphine sulphate, one-half grain (32 mg.), was given by the patient's physician. Fourteen days later the blood pressure and urine were normal.

CASE 30.—Mrs. M. M., a primipara, after a gestation of twenty-eight weeks, entered the Ohio Valley Hospital, Feb. 11, 1928, at 6:30 p. m., with a blood pressure of 172 systolic and 108 diastolic, having had two convulsions. The urine boiled solid with albumin, casts, and red blood cells. The administration of heparmone was started after the third convulsion, and eight more followed. The blood pressure was kept around 150 systolic and 90 diastolic, and the urinary output increased from 15 cc. to 60 cc. an hour by the next day, showing 5 Gm. of albumin. The patient was delivered seventy days later, after premature separation of the placenta, of a stillborn infant.

CASE 31.—Mrs. M. B., aged 18, a primipara, after a gestation of twenty-eight weeks, entered the hospital, March 14, 1928, at 2:45 p. m. with a blood pressure of 162 systolic and 90 diastolic, and a urine containing 10 Gm. of albumin, casts, and red blood cells. She had two convulsions before heparmone was started, and nine more afterward. The blood pressure was kept around 130 systolic and 70 diastolic. The urinary output increased from 4 cc. to 120 cc. an hour. She was delivered the next day with low forceps; there was fetal distress. Ten days later the blood pressure and urine were normal.

CASE 32.—Mrs. L. B. entered the hospital, March 19, 1928, at 11 a. m., with a blood pressure of 180 systolic and 108 diastolic, and a urine showing 2 Gm. of albumin. She had been given 10 cc. of heparmone ten days previously, and had started to use it again. The blood pressure dropped to 124 systolic and 70 diastolic, and she went into labor the next morning. Blurriness of vision and a convulsion occurred, followed by ten more. The blood pressure was kept around 140 systolic and 80 diastolic, and the urinary output increased from 40 cc. to 85 cc. an hour. The patient was delivered of a living child, in face presentation, with Barton forceps. The blood carbon dioxide increased from 24.5 to 48.5 in four hours. The blood pressure and urine were normal in ten days.

CASE 33.—Mrs. P. F., aged 40, a duodecipara, after a gestation of thirty-two weeks, entered the Canonsburg Hospital, March 20, 1928, after having had five convulsions. The blood pressure was 150 systolic and 90 diastolic; the urine boiled solid with albumin, red blood cells and casts, and there was slight edema. Morphine sulphate, one-fourth grain (16 mg.), was given. There were three more convulsions before heparmone was started by Dr. Emory in doses of 10 cc. every fifteen to twenty-five minutes, after which there were no more convulsions. The blood pressure was kept around 132 systolic and 72 diastolic. Pulmonary edema cleared up in a few hours. The patient became better and sixteen hours later delivered spontaneously, without anesthesia. Four days later only a faint trace of albumin remained in the urine, and the blood pressure was 120 systolic and 78 diastolic.

CASE 34.—Mrs. M. S., aged 18, a primipara, after a gestation of thirty-two weeks, entered the hospital, March 22, 1928, at 6:30 p. m. in a moribund state, with deep cyanosis, marked pulmonary edema, and yellow frothy material dripping from the nose and mouth. Cheynes-Stokes respirations were present. The patient had had six convulsions, treated by her physician with morphine, one-fourth grain (16 mg.), during the forenoon, the last dose having been given at 2:30 p. m. Gastric lavage was done and 2 ounces of magnesium sulphate instilled at 2 p. m. On admission to the hospital the blood pressure was 130 systolic and 60 diastolic, the pulse was irregular, and the urine contained 16 Gm. of albumin, casts and red blood cells. Ten cubic centimeters of heparmone was given intramuscularly; the blood pressure dropped to 80 systolic and 0 diastolic, and the condition grew worse in the next nine hours. Epinephrine, 10 minims (0.6 Gm.), and ephedrine, three-fourths grain (48 mg.), were given. The blood pressure rose to 124 systolic and 00 diastolic. Administration of heparmone was again started, but the blood pressure stayed at that level. The patient was delirious in one hour and conscious in two hours. The urinary output increased from nothing to 300 cc. an hour. The patient was delivered of a stillborn infant the next morning. The blood pressure was normal and the urine contained a trace of albumin ten days later.

CASE 35.—Mrs. R. L., after a gestation of forty weeks, entered the hospital, March 24, 1928, at 4:45 p. m. in labor. The next morning she had blurriness of vision and a convulsion. The blood pressure was 155 systolic and 104 diastolic, and the urine contained 2 Gm. of albumin. Heparmone was started, and there were no more convulsions. The blood pressure was kept around 135 systolic and 88 diastolic. The patient gave birth to a child three hours later. The blood pressure and urine were normal in eight days.

CASE 36.—Mrs. T. R., aged 30, a septipara, entered the hospital, April 10, 1928, with a blood pressure of 190 systolic and 118 diastolic, and a urine containing 6 Gm. of albumin and casts. Her condition was thought to be nephritic toxemia and chronic myocarditis, and 10 cc. of heparmone was given three times a day. There was no change in the blood pressure or urine. Fifty-seven days later she was delivered of a living child. The blood pressure was 225 systolic and 120 diastolic, and a convulsion occurred, followed by three more. We unfortunately ran out of our supply of heparmone after the fourth convulsion, and morphine sulphate, one-half grain (32 mg.), was given. Three hours later heparmone was received and started again. When the patient was discharged the blood pressure was 178 systolic and 112 diastolic, and the urine contained 1 Gm. of albumin.

CASE 37.—Mrs. I. C., aged 18, a primipara, after a gestation of forty weeks, entered the hospital, April 15, 1928, at 8:45 p. m. after having had four convulsions at home. The axillary temperature was 105 F., the pulse was irregular (160?), and the urine contained 10 Gm. of albumin, casts, and red blood cells. Heparmone was started, and the blood pressure kept around 140 systolic and 100 diastolic. The patient was delivered, April 19, 1928, at 4 a. m., of a normal child. She had one more convulsion, and the urine contained a trace of albumin. Ten days later the blood pressure was normal, but the patient developed aphasia and paralysis of the left facial nerve.

CASE 38.—Mrs. I. S., a primipara, after a gestation of forty weeks, entered the Brownsville General Hospital, April 2, 1928, at 9:10 a. m., and gave birth to a child spontaneously at 2:15 the next morning. At 6:30 a. m. a convulsion occurred, followed by fourteen more. Bromides, 30 grains (2 Gm.), and mild mercurous chloride, one-half grain (32 mg.), were given. Heparmone was started after the fourth convulsion. The blood pressure was 202 systolic and 128 diastolic. Ten cubic centimeters of heparmone was given every fifteen minutes to one hour, and the blood pressure was kept around 158 systolic and 100 diastolic. The urine boiled solid with albumin, casts and red blood cells. The urinary output decreased to a complete anuria, and the patient became delirious. Morphine sulphate was given in quarter grain (16 mg.) doses until the patient became quiet. She died twelve hours later. Autopsy showed a most extensive necrosis of the liver with large hemorrhagic areas. The kidneys showed an acute and chronic glomerular nephritis.

CASE 39.—Mrs. M. S., aged 19, a primipara, after a gestation of forty weeks, was seen in the clinic and advised to come for treatment. This she refused to do. She entered the hospital, April 16, 1928, after having had a convulsion at home. The blood pressure was 238 systolic and 122 diastolic. The urine contained 4 Gm. of albumin, and casts. The administration of heparmone was started, and the blood pressure was kept around 160 systolic and 100 diastolic. There were twenty-

seven more convulsions. The patient was delivered the next day of a living boy. Morphine sulphate, one-fourth grain (16 mg.) was given, after sixteen convulsions. Ten days later the blood pressure was normal, and the urine showed a trace of albumin.

CASE 40.—Mrs. H. T., aged 18, a primipara, entered the hospital in coma after having had eight convulsions. The blood pressure was 210 systolic and 108 diastolic. There was no edema. The urine contained 35 Gm. of albumin, casts and red blood cells. Heparmone was given intramuscularly every fifteen minutes, but the patient had fifteen more convulsions. There was complete anuria. The patient died twelve hours later. The temperature had been 105 F., the pulse, 160, and irregular. Autopsy showed, grossly and microscopically, large hemorrhagic areas of liver with extensive necrosis, right hydronephrosis and acute parenchymatous nephritis.

CASE 41.—Mrs. G. K., aged 19, a primipara, entered New Brighton Hospital, April 29, 1928, at 6 p. m., after having had five convulsions. Her physician had performed venesection and administered morphine. The next morning six more convulsions occurred. The blood pressure was 178 systolic and 102 diastolic. Heparmone, 10 cc., was given intravenously and thereafter in doses of 10 cc. every half hour. The urine contained 10 Gm. of albumin and casts. The patient was delivered of a stillborn child that evening. The blood pressure was kept around 142 systolic and 78 diastolic.

CASE 42.—Mrs. L. S., who, after a gestation of forty weeks, entered the hospital, May 29, 1928, at 10:30 a. m., had been delivered at home by her physician at 5:30 a. m., and had then had two convulsions. The blood pressure on admission was 262 systolic and 134 diastolic. The urine contained 25 Gm. of albumin, casts and red blood cells. Heparmone was given every fifteen minutes, and the blood pressure was kept around 190 systolic and 100 diastolic. Eight more convulsions followed, and the urinary output increased from 6 cc. to 30 cc. an hour. The pulse was irregular twenty-four hours later, and rapid. Three ampules of digifolin and one-fourth grain (16 mg.) of morphine sulphate were given. The urine four days later showed a trace of albumin; the blood pressure was 180 systolic and 128 diastolic.

CASE 43.—Mrs. M. B., aged 35, a secundipara, after a gestation of thirty-six weeks, entered the hospital, June 1, 1928, at 4:15 a. m. after having had three convulsions. The blood pressure was 184 systolic and 0 diastolic; the urine contained 30 Gm. of albumin, casts and red blood cells. Ten cubic centimeters of heparmone was given every fifteen minutes, and the blood pressure was kept around 170 systolic and 88 diastolic. The urinary output increased from nothing to 40 cc. an hour. The patient gave birth spontaneously, fourteen hours later, to a living child. There had been twenty-three convulsions after her entrance. The blood pressure three days later was 130 systolic and 70 diastolic. The urine contained 1.5 Gm. of albumin, and casts. The blood carbon dioxide varied from 29.2 to 37.9 in six hours. Morphine sulphate, one-fourth grain (16 mg.), was given after convulsions.

Two additional patients were seen after convulsions had ceased.

CASE 44.—Mrs. M. S., aged 26, a secundipara, after a gestation of twenty-eight weeks, entered the hospital after having had a number of convulsions. Four days before the blood pressure had been 208 systolic and 130 diastolic, and the urine contained 1 Gm. of albumin and casts. Heparmone, in doses of 10 cc., was given three times a day. The blood pressure dropped to 168 systolic and 10 diastolic. At the end of a week, the urine contained 0.5 Gm. of albumin. The patient was delivered ten days later of a macerated fetus.

CASE 45.—Mrs. F. S. C., seen three days after convulsions ceased, had a blood pressure of 194 systolic and 136 diastolic, and urine containing 14 Gm. of albumin. Heparmone, 10 cc., was given twice daily. The blood pressure ranged between 186 systolic and 136 diastolic and 169 systolic and 128 diastolic, and albumin varied from 5.5 Gm. to 12.5 Gm. The blood uric acid and nonprotein nitrogen decreased and the carbon dioxide content increased. The patient went into labor twenty-one days later, and was delivered spontaneously of a premature infant, weighing about 2½ pounds (1 Kg.), which died twenty-four hours later.

CONCLUSIONS

1. Of the 255 consecutive patients, all of whom can be classified in the preeclamptic group, four developed convulsions.

2. Of the forty-three consecutive patients with eclampsia, treated during the period from Oct. 1, 1926, to June 4, 1928, three died, a mortality of 6.9 per cent.

3. The value of any method of treatment cannot be considered as conclusively proved until at least 100 consecutive cases have been treated.

4. We hope to supplement this report by adding all cases treated until this number (100) has been reached.

EFFECT OF THE INTRAVENOUS ADMINISTRATION OF MAGNESIUM SULPHATE

EXPERIMENTAL STUDIES *

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In 1907, Einar [1] directed attention to the possible therapeutic value of magnesium sulphate in the treatment of eclampsia. He reported two cases of eclampsia treated successfully with intraspinal injections of that drug. Rissmann,[2] in 1913, described a case of eclampsia similarly treated and with a good outcome for both mother and child. He reasoned that, in view of the good results obtained by such treatment in other types of convulsive seizures, it might prove beneficial in

TABLE 1.—*Gross Maternal Mortality in Eclampsia*

Author	Clinic	No. of Cases	Treatment	Mortality, %
Stoeckel: Zentralbl. f. Gynäk. **51**: 141, 1927	Leipzig	119	Radical	8.4
Leidenius: Zentralbl. f. Gynäk. **52**: 196, 1928	Helsingsfors	250	Radical	14.2
Davis and Harrar: J. A. M. A. **87**: 233 (July 24) 1926	New York Lying-In	370 149	Radical Conservative (venesection)	20.0 15.0
Miller and King	New Orleans Charity Hospital	138 38	Radical Conservative (modified Stroganoff)	47.8 15.8
Williams	Johns Hopkins Hospital	110 198	Radical Conservative (modified Stroganoff)	22.8 13.6
Zweifel: Zentralbl. f. Gynäk. **47**: 1521, 1923	Leipzig	394 317	Radical Conservative (venesection)	18.5 8.5
Powitzer: Zentralbl. f. Gynäk. **48**: 2167, 1924	Berlin	245	Mixed	18.0
Engelmann: Monatschr. f. Geburtsh. u. Gynäk. **61**: 187, 1923	Dortmund	222	Mixed	10.4
Hochenbichler: Zentralbl. f. Gynäk. **51**: 486, 1927	Vienna	275	Mixed (quartz light)	18.1
Forssner: Acta Gynec. Scandinav. **1**: 416, 1922	Stockholm	102	Conservative (Stroganoff)	10.8
Lazard, Irwin and Vruwink (footnote 6); McNeile and Vruwink (footnote 7)	Los Angeles	138	Conservative (magnesium sulphate)	13.0
Dorsett and Dieckmann	St. Louis	94	Conservative (magnesium sulphate)	11.7

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* From the Department of Obstetrics, Johns Hopkins University and Hospital.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 14, 1928.

1. Einar, H.: Am. J. Physiol. **16**: 366, 1905.
2. Rissmann: Zentralbl. f. Gynäk. **37**: 196, 1913.

severe eclampsia. Four years later, Kaas [3] treated a case of postpartum eclampsia with subcutaneous injections of 10 cc. of 25 per cent solution of magnesium sulphate.

Five years ago, Alton and Lincoln [4] read a paper on the control of eclamptic convulsions by intraspinal injections of magnesium sulphate. These workers gave a good summary of the literature on the subject and reported four cases of eclampsia treated with this drug

During the past few years, general interest has been aroused in the use of magnesium sulphate for the treatment of eclampsia. Lazard, Irwin and Vruwink,[6] McNeile and Vruwink,[7] Dorsett [8] and Rucker [9] have reported fairly large series of cases treated by this method. Moreover, Lazard and his co-workers have made a very careful clinical study of the effects of the drug in 103 women suffering from eclampsia, and, in a recent personal communication, Lazard states that he

TABLE 2.—*Effect of Magnesium Sulphate on Blood*

		Before Magnesium Sulphate					After Magnesium Sulphate						
Dog	Procedure	Non-protein Nitrogen	Uric Acid	Sugar	Carbon Dioxide	Blood Urea Nitrogen	Non-protein Nitrogen	Uric Acid	Sugar	Carbon Dioxide	Blood Urea Nitrogen	Comment	Total Dosage per Kg. of Body Weight, Gm.
	10% Magnesium Sulphate												
1	11/17/27, 6.6 cc. 11/18/27, 6.6 cc.	35.3	1.5	91	44.7	....	33.3	1.5	121	45.7	....	Killed 1 hour after last injection; intravenous administration	0.05
2	11/19/27, 13 cc. 11/20/27, 6.6 cc. 11/21/27, 6.6 cc.	38.7	0.4	70	51.0	....	33.3	1.1	109	51.0	....	Killed ½ hour after last injection; intravenous administration	0.15
3	11/22/27, 13 cc. 11/23/27, 13 cc.	31.6	...	80	41.3	....	30.0	...	111	45.7	....	Killed ½ hour after last injection; intravenous administration	0.13
6	12/ 1/27, 13 cc. 12/ 2/27, 13 cc.	40.0	Trace	80	45.7	....	40.0	0.8	143	53.8	....	Killed ½ hour after last injection; intravenous administration	0.11
11	1/ 4/28, 13 cc., 11 a.m. 13 cc., 3 p.m. 1/ 5/28, 13 cc., 11 a.m.	46.0	1.0	80	41.8	16.8	42.8	1.0	80	40.5	14.1	Killed ½ hour after last injection; intravenous administration	0.28
12	1/ 6/28, 5 cc., 11 a.m. 11 cc., 3 p.m. 1/ 7/28, 11 cc., 11 a.m. 1/ 9/28, 11 cc., 11 a.m.	40.0	Trace	67	44.5	19.6	37.5	Trace	70	50.5	19.6	Killed ½ hour after last injection; intravenous administration	0.33
13	1/10/28, 13 cc. 1/11/28, 15 cc. 1/12/28, 15 cc. 1/13/28, 15 cc.	33.3	0	97	47.4	14.0	46.0	Trace	100	51.2	23.3	Killed 1 hour after last injection; all injections intramuscularly	0.29
	25% Magnesium Sulphate												
15	2/ 4/28, 10 cc. 2/ 6/28, 15 cc.	50.0	0.6	100	45.6	17.2	47.6	0.6	105	50.3	13.1	Intravenous administration; unable to walk after second injection	0.39
16	2/15/28, 10 cc.	35.3	1.1	87	50.1	11.2	36.1	1.1	130	40.5	12.1	Became unconscious during intravenous injection and died within 10 minutes	0.25
17	3/ 2/28, 10 cc. 3/ 3/28, 10 cc.	33.7	0.7	80	52.0	11.6	30.0	0.7	111	55.0	11.2	Intravenous; after each injection became listless and staggered	0.49
	Averages.....	38.4	0.5	83	46.4	15.1	37.7	0.7	108	48.4	15.6		

TABLE 3.—*Histologic Observations in Liver and Kidneys*

		Liver			Kidneys			
							Fat Stain	
Dog	Treatment	Necrosis	Nuclei	Fat Stain	Glomeruli	Convoluted Tubules	Convoluted Tubules	Straight Tubules
18	Normal	None	Preserved	Slight punctiform	Normal	Normal	None	Marked
19	Normal	None	Preserved	Slight punctiform	Normal	Normal	None	Marked
20	Normal	None	Preserved	Slight punctiform	Normal	Normal	None	Marked
1	Magnesium sulphate	Moderate central	Some lacking	Fine diffuse punctiform	Normal	Moderate degeneration	Marked	Marked
2	Magnesium sulphate	Moderate central	Some lacking	Fine diffuse punctiform	Normal	Moderate degeneration	Marked	Marked
3	Magnesium sulphate	Moderate central	Some lacking	Fine diffuse punctiform	Normal	Débris in lumen	Marked	Marked
6	Magnesium sulphate	Moderate diffuse	Some lacking	Slight at center	Normal	Débris in lumen	Marked	Marked
11	Magnesium sulphate	Moderate central	Some lacking	Fine diffuse punctiform	Normal	Moderate degeneration	Marked	Marked
12	Magnesium sulphate	Moderate central	Some lacking	Very slight	Normal	Moderate degeneration	Marked	Marked
13	Magnesium sulphate	Moderate central	Some lacking	Fine diffuse punctiform	Normal	Moderate degeneration	Marked	Marked
15	Magnesium sulphate	Moderate central	Some lacking	At center of lobule	Normal	Moderate degeneration	Slight	Marked
16	Magnesium sulphate	None	Preserved	Diffuse in portal spaces	Normal	Normal	None	Marked
17	Magnesium sulphate	Moderate central	Some lacking	Fine diffuse punctiform	Normal	Débris in lumen	Slight	Marked
21	Magnesium sulphate	Moderate central	Some lacking	Fine diffuse punctiform	Normal	Moderate degeneration	Marked	Marked

with two maternal deaths. They advised the use of 1 cc. of a 25 per cent solution of magnesium sulphate to each 25 pounds (11 Kg.) of body weight.

The following year, Lazard [5] reported seventeen cases of eclampsia treated by magnesium sulphate with a maternal mortality of 5.88 per cent. He advocated the intravenous use of the drug in order to control the eclamptic convulsions, produce diuresis and reduce edema.

and his co-workers have treated thirty-five additional cases. Consequently, in eighty-nine eclamptic women treated at the Los Angeles General Hospital there was a gross maternal mortality of 14.6 per cent, with a corrected maternal mortality of 10.5 per cent, as well as five maternal deaths in forty-nine cases treated outside this hospital.

3. Kaas, J.: Hospitalstid. **60:** 776 (Aug. 8) 1917.
4. Alton, B. H., and Lincoln, G. C.: Am. J. Obst. & Gynec. **9:** 167 (Feb.) 1925.
5. Lazard, E. M.: Am. J. Obst. & Gynec. **9:** 178 (Feb.) 1925.
6. Lazard, E. M.; Irwin, J. C., and Vruwink, John: Intravenous Magnesium Sulphate Treatment of Eclampsia, Am. J. Obst. & Gynec. **12:** 104 (July) 1926.
7. McNeile, L. G., and Vruwink, John: Magnesium Sulphate Intravenously, J. A. M. A. **87:** 236 (July 24) 1926.
8. Dorsett, L. Am. J. Obst. & Gynec. **11:** 227 (Feb.) 1926.
9. Rucker, M. P.: Pneumonia as Sequel to Anesthesia, Virginia M. Monthly **54:** 558 (Dec.) 1927.

In order to obtain a possible basis for comparison, table 1 has been constructed from data obtained from the recent literature on the treatment of eclampsia, as well as from information submitted in personal communications to the author. In it the gross mortality rather than corrected mortality is considered. The statistics from ten clinics are presented, and only those have been chosen which present large series of 100 or more cases, as it is apparent that results derived from smaller series of cases may be misleading.

From the figures reported from clinics in which a comparative study between radical and conservative treatment has been carried out, it appears that the conservative or medical treatment gives uniformly better results than active and radical intervention. The results following the use of magnesium sulphate will be discussed later. This paper is based on a study of the toxicity of magnesium sulphate in twenty-four dogs. The procedure of experimentation has been similar to that followed and outlined in my paper on anesthesia.[10] I have attempted to ascertain the effect of different concentrations of magnesium sulphate solution, as well as of different methods of its administration. All animals were starved for eighteen hours preceding the experiment and an initial blood specimen was usually obtained at about 9 o'clock on the morning of the experiment. Only healthy nonpregnant and pregnant females that had not been subjected to any previous experimental work were used.

The blood nonprotein nitrogen, urea nitrogen, uric acid, sugar and carbon dioxide combining power were determined in all cases, and in a few, analyses for lactic acid, inorganic phosphorus and acetone bodies were also made. Many of the animals were killed shortly after the experiment in order that the tissues might be studied microscopically, and I am indebted to Dr. Williams for the histologic details.

In table 2 are reported the blood analyses in ten dogs. The total dosage of magnesium sulphate administered to each dog varied from 0.05 to 0.49 Gm. per kilogram of body weight. In a woman weighing 150 pounds (68 Kg.), such dosage would be equivalent to from 3.4 to 33.7 Gm. Since the amounts administered clinically, as reported in the recent literature, usually vary from 5 to 15 Gm., these limits fall well within the experimental range. In the method of administration, I have also attempted to simulate the clinical procedure. Small doses of a 10 per cent solution, repeated in twenty-four hours or less, were slowly administered intravenously, as indicated in table 2. In some instances a 25 per cent solution was employed intravenously, and one animal received intramuscular injections of a 10 per cent solution.

From a study of table 2 it is apparent that chemical examinations did not reveal any marked changes in the blood as a result of the magnesium sulphate, although there is a tendency toward an increase in the blood sugar, and a slight elevation of the carbon dioxide combining power. The nonprotein nitrogen, blood urea nitrogen and uric acid remain unchanged.

In table 3 is given a brief summary of the histologic observations in the liver and kidneys. It might be mentioned that three normal dogs were killed for control observations. The tissues were stained with hematoxylin and eosin, as well as with sudan, for the detection of fat. From a consideration of this table it can be seen that magnesium sulphate produced in all instances, except in dog 16, a moderate degree of central necrosis in the liver lobules, while the peripheral portions remained unchanged. Furthermore, it should be noted that dog 16 died within ten minutes after administration of the magnesium sulphate, so that one would not expect liver cell destruction to have occurred within so short a time.

Observations made by Dr. Williams serve as an illustration of the effect of the drug on the microscopic appearance of the liver and kidneys in dog 12. He noted marked central change in the liver, so that the low power sections presented a mottled appearance. All cells appeared to be granular. In the central portion many cells were dead, but not at the periphery of the lobules. Marked vacuolation suggesting fatty change was not noted. The kidneys presented convoluted tubules filled with débris and desquamated cells. Many cells had lost their nuclei, but no definite fatty

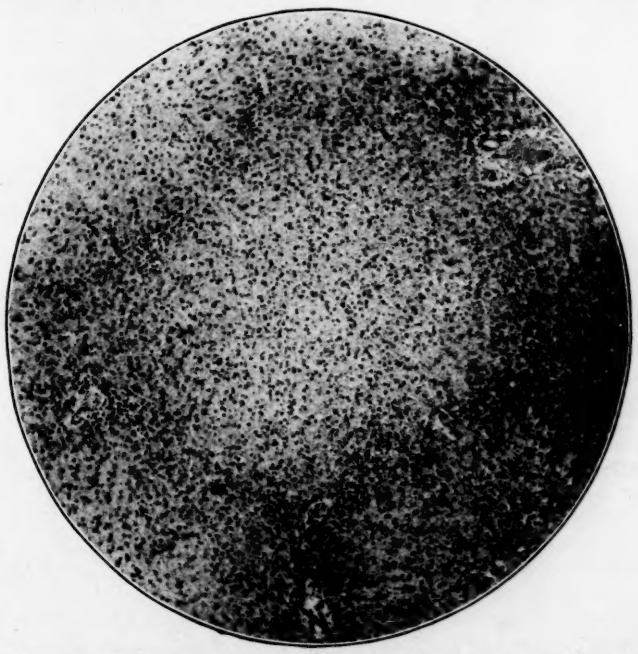

Fig. 1.—Changes in central part of liver lobule in dog 2 following intravenous administration of magnesium sulphate.

change was made out. The appearance of the liver after the administration of magnesium sulphate is shown in figures 1 and 2.

The effect of magnesium sulphate on the kidneys appears to consist in the production of a moderate degenerative change in the convoluted tubules. The fat-stain preparations of the kidney are very interesting, and, unless one is acquainted with the peculiarities of the dog's kidneys, serious misinterpretations might be made. It should be noted that in normal dogs there is always a marked deposit of fat in the cells lining the straight tubules, so that in sudan specimens a striking picture results, which is not of clinical importance. This is well illustrated in figures 3 and 4. It should also be noted that in these two preparations no fat is present in the convoluted tubules. On the other hand, following the intravenous administration of magnesium sulphate there is usually a moderate deposition of fat in the convoluted tubules, which should be regarded as abnormal (fig. 5).

In dog 21 I attempted to follow in detail the same procedure of treatment as was used in one of Dr.

10. Stander, H. J.: Am. J. Obst. & Gynec. 12: 633 (Nov.) 1926.

Lazard's patients (case 36), as shown in the following protocol:

DOG 21.—A nonpregnant female, weighing 37 pounds (17 Kg.), was given injections of magnesium sulphate, March 16, 1928, as follows:

11:55 a. m., 7 cc. of 10 per cent magnesium sulphate intravenously.

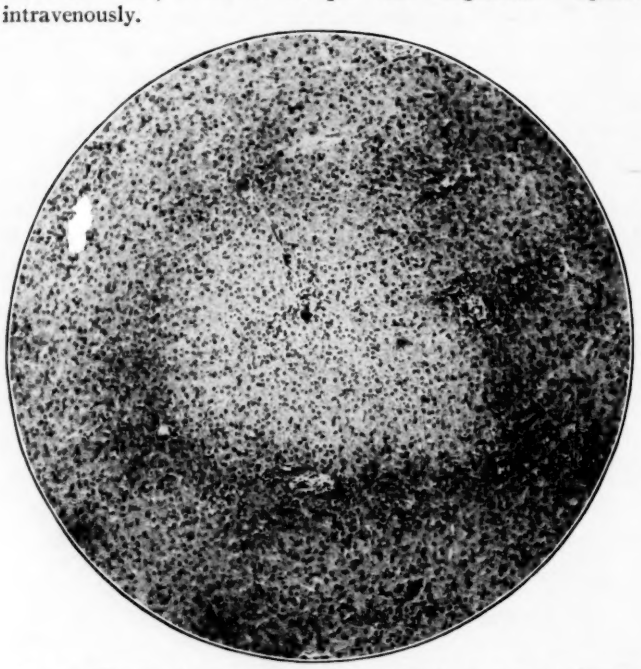

Fig. 2.—Changes in central part of liver lobule in dog 3 following intravenous administration of magnesium sulphate.

1:20 p. m., 8 cc. of 10 per cent magnesium sulphate intravenously.

1:50 p. m., 1 cc. of 50 per cent magnesium sulphate intramuscularly.

2:00 p. m., 6 cc. of 10 per cent magnesium sulphate intravenously.

2:40 p. m., 4 cc. of 10 per cent magnesium sulphate intravenously.

4:55 p. m., 5 cc. of 10 per cent magnesium sulphate intravenously.

5:30 p. m., 5 cc. of 10 per cent magnesium sulphate intravenously.

This animal received a total of 4 Gm. of magnesium sulphate, which would be equivalent to 16 Gm. in a woman weighing 148 pounds (67 Kg.). The dog did not show any ill effects clinically, except for an increase in the pulse rate, deeper breathing and licking of the lips. She was killed twenty-four hours after the first injection. The pathologic changes are reported in table 3.

A similar experiment was repeated in a pregnant dog (22) at term. She weighed 20 pounds (9 Kg.), and received a total of 2 Gm. administered in six doses intravenously. There were no ill effects, and the animal had normal pups at the calculated date of confinement.

In two dogs (23 and 24) the effect of magnesium sulphate on the blood chlorides was studied. Whole blood normally contains from 440 to 500 mg. of sodium chloride per hundred cubic centimeters. There is undoubtedly a relation between the distribution and movement of sodium chloride and of water, and also a relation between the movement of salts, particularly sodium chloride, and the development of edema. Wodon[11] has ascribed the favorable action of magnesium sulphate in eclampsia to a reduction of cerebral edema. It is generally recognized that it is not the retention of sodium chloride in the blood which is directly responsible for edema but rather its retention in the tissues. Furthermore, the weight of experimental evidence makes it fairly certain that it is the cation and not the chlorine ion which is responsible for the retention of water. There are, of course, several factors which may play a rôle in the development of edema.

There are numerous illustrations in the literature dealing with the effect of colloids on the movement of water in the body. It is also known that certain hormone substances influence the exchange of water and salts between the blood and the kidneys and also between the tissues and the blood.

If magnesium sulphate reduces cerebral edema, it must be because water and sodium chloride pass from the tissues to the blood stream, and from the latter to the kidneys, causing diuresis with increased sodium chloride excretion. It may be impossible to detect such a movement of water from tissue to kidney merely by following the concentration of blood chlorides, so for that reason my results may not be conclusive.

DOG 23.—A nonpregnant female, weighing 25 pounds (11.3 Kg.), was treated, May 21, 1928, as follows:

11:00 a. m., venipuncture.

11:10 a. m., 15 cc. of 25 per cent magnesium sulphate was given intravenously.

11:12 a. m., the dog was unconscious and venipuncture was performed.

11:13 a. m., the animal died.

The total dosage was 0.34 Gm. of magnesium sulphate per kilogram of body weight.

DOG 24.—A nonpregnant female, weighing 41½ pounds (19 Kg.), was treated, May 22, 1928, as follows:

11:00 a. m., venipuncture.

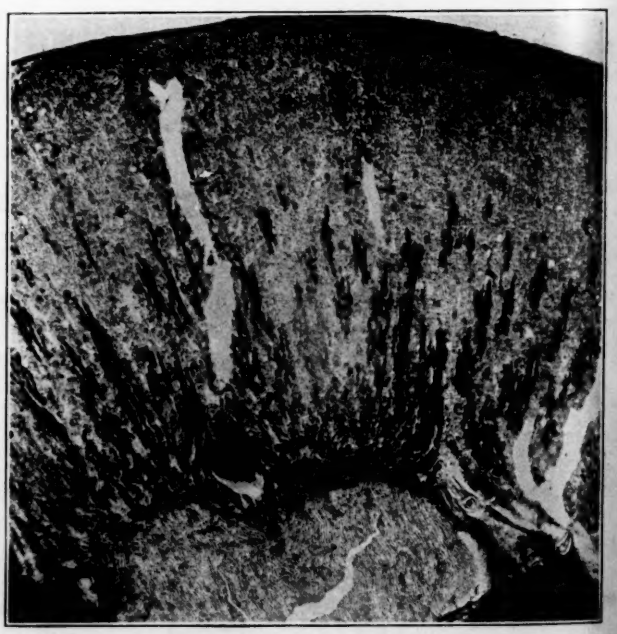

Fig. 3.—Deposit of fat in straight tubules in kidney of normal dog (low power).

11:10 a. m., 10 cc. of 25 per cent magnesium sulphate was injected intravenously.

11:15 a. m., the animal vomited and became quite excited.

11:22 a. m., venipuncture.

The total dosage was 0.13 Gm. of magnesium sulphate per kilogram of body weight.

11. Wodon, J. L. Rev. franç. de gynéc. et d'obstét. **22**:85 (Feb.) 1927.

May 23, 11 a. m., venipuncture.

11:10 a. m., 20 cc. of 25 per cent magnesium sulphate intravenously.

11:12 a. m., very rapid breathing; the animal was excited.

11:25 a. m., venipuncture.

The total dosage for the two days was 0.39 Gm. of magnesium sulphate per kilogram of body weight.

Fig. 4.—Deposit of fat in straight tubules in kidney of normal dog (high power).

The blood specimens obtained from these two dogs were analyzed for chlorides and carbon dioxide combining power. The chlorides were determined on the whole blood by the method of Whitehorn. The results are shown in table 4.

The results in these two experiments indicate that the injection into the blood stream of such small amounts as 10 cc. of a 25 per cent solution of magnesium sulphate does not produce any definite change in the sodium chloride content of the whole blood. Consequently, it appears likely that any favorable effect which magnesium sulphate may have in eclamptic women is not associated with increased excretion of sodium chloride.

TABLE 4.—*Blood Chlorides in Dogs 23 and 24*

Dog	Before Magnesium Sulphate		After Magnesium Sulphate	
	Sodium Chloride	Carbon Dioxide	Sodium Chloride	Carbon Dioxide
23.....	440	47.7	452	49.6
24 (5/22/28).....	485	48.3	485	44.5
(5/23/28).....	495	50.5	482	48.7

COMMENT

It should be apparent to all that one must be particularly cautious in attempting to apply results obtained from animal experimentation to human beings. This is very clearly shown by the fat-stain preparations of the kidneys, which revealed a marked deposition of fat in the straight tubules in normal dogs, a condition not present in the normal kidney of man or of other animals. A similar discrepancy holds true for certain of the blood constituents, notably uric acid. Normal blood contains from 1.5 to 3.5 mg. of uric acid per hundred cubic centimeters of blood, while there is usually only a faint trace in the dog.

These experiments indicate that magnesium sulphate when administered to dogs, in concentration and dosage equivalent to that commonly employed in women suffering from eclampsia, does not produce any marked change in the blood on chemical examination. The only effect noted as far as the blood constituents are concerned is a slight tendency toward a hyperglycemia, and in many cases a slight elevation of the carbon dioxide combining power. It is conceivable that magnesium sulphate might have a good effect on the acidosis of eclampsia should it raise the carbon dioxide combining power 5 or more per cent by volume; but the rise is only rarely that high.

The pathologic changes, on the other hand, are more striking, and justify the assumption that the dose, per unit of body weight, and concentration of magnesium sulphate, as used in the treatment of eclampsia, will produce in the dog moderate central necrosis of the liver lobule as well as a moderate degeneration of the convoluted tubules of the kidney.

From a consideration of table 1, in which an attempt is made to give a fair presentation of the gross maternal mortality in eclampsia in large series of cases (approximately 100 or more), it is apparent that there is a conflict in the end-results obtained, even under the same type of treatment. Part of this may be explained by differences in the type and severity of the eclampsia occurring in different localities, and part by the difference in the social character of the clinical material, it being apparent that better results will be obtained in clinics whose patients are fairly intelligent and enter the clinic after the first fit has occurred than in those to which the majority of patients come only after a long period of neglect. After making due allowance for such considerations, it is apparent that other factors must be involved in explanations of such differences.

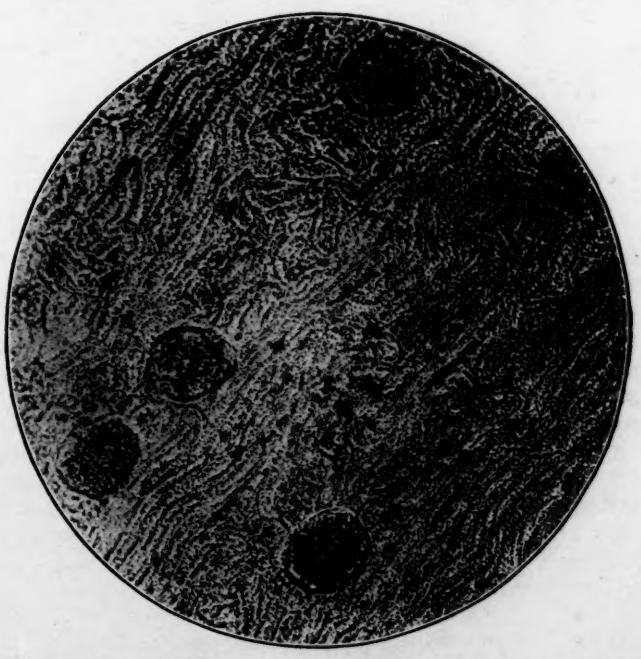

Fig. 5.—Slight deposit of fat in convoluted tubules of dog's kidney, following intravenous administration of magnesium sulphate.

The outstanding lesson to be drawn from the figures reported in table 1 is that in the clinics which present large series of cases, some treated by radical and others by conservative means, the best results follow the latter.

Furthermore, while the results following the use of magnesium sulphate compare favorably with those obtained by other methods of conservative treatment, the question arises in both groups of cases whether the results are post hoc or propter hoc; in other words, whether the improvement in results is not almost entirely due to doing away with serious operative procedures under profound anesthesia on seriously ill women rather than to any specific action of the treatment employed—whether magnesium sulphate, the Stroganoff method or what not.

It is now generally understood that chloroform produces necrosis of the liver lobule, and yet many believe it to be of value in controlling the eclamptic convulsions. My own views, however, are that when one is able to obtain as good results without as with the use of a drug that is liable to injure the liver, it is sounder therapy not to employ such a drug. It is known that eclampsia either produces, or is intimately associated with, liver injury and it would appear inadvisable to employ any method that would be likely to accentuate it.

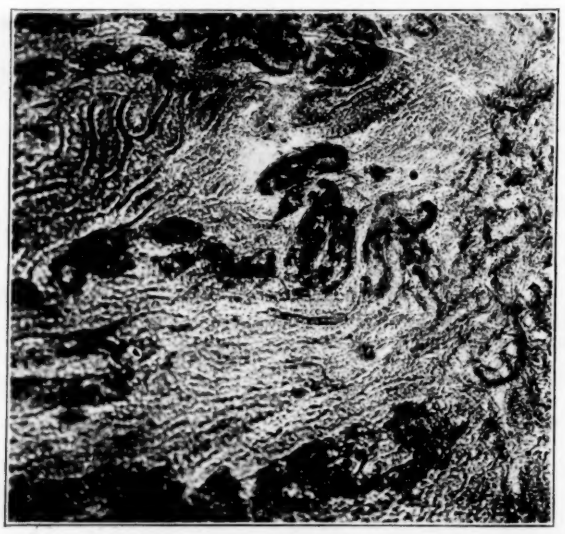

Fig. 6.—More marked deposit of fat in convoluted tubules of dog's kidney, following intravenous administration of magnesium sulphate.

I believe it to be very essential that those who advocate the use of magnesium sulphate bear in mind that when given in too large amounts it may prove toxic, as demonstrated by the observations in dogs 15, 16, 17 and 23. It would appear that a 10 per cent solution of magnesium sulphate given in a total dosage of not more than 0.1 Gm. per kilogram of body weight will probably not produce serious injury to the tissues. This would be equivalent to a total of 6.5 Gm. of the drug in a person weighing 143 pounds (65 Kg.). On the other hand, these experiments indicate that larger doses may actually do harm. I would further suggest that no single intravenous injection should exceed 10 cc. of a 10 per cent solution.

CONCLUSIONS

1. Magnesium sulphate, in doses ranging from 0.05 to 0.49 Gm. per kilogram of body weight, administered to dogs either intramuscularly or intravenously in 10 or 25 per cent solution, did not produce any marked changes in the blood on chemical examination but did produce definite histologic changes in the liver and kidneys, in the form of moderate necrosis in the central part of the liver lobule and moderate degeneration in the convoluted tubules of the kidneys.

2. Magnesium sulphate when administered in large amounts is toxic and may produce death. I consider that for human beings the nontoxic dose should not exceed 0.1 Gm. per kilogram of body weight.

3. I also feel that magnesium sulphate should not be administered intravenously in a concentration much exceeding 10 per cent, as I have found that a concentration of 25 per cent proved fatal in some of my experimental dogs.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MILLER AND MARTINEZ AND DR. STANDER

DR. E. M. LAZARD, Los Angeles: It is now four years since we began the use of magnesium sulphate in eclampsia and eclamptic toxemias at the Los Angeles General Hospital. For a series of ninety-nine cases, we have a gross mortality of 14 per cent plus, in contrast with our gross mortality of 36 per cent in the five years preceding the institution of this method of treatment. Our corrected mortality for the entire series is 10.5 per cent. It is our routine to give 20 cc. of the 10 per cent solution to every patient presenting a systolic blood pressure of more than 150, and to control the repetition of the dose by the blood pressure. These nonconvulsive patients fall into two groups: (1) those admitted in labor and found to have a systolic pressure above 150, usually with albuminuria, and to whom the magnesium sulphate is given as a prophylactic, and (2) those who are admitted as frankly toxic and in whom the intravenous injection is the main feature of the treatment. There were 112 cases in all, of which forty-five fell in the first group and sixty-seven in the second group. Of the forty-five in the first group, three developed convulsions; all three had only a single injection and developed convulsions post partum, two a single convulsion one-half hour and seven hours post partum, respectively, and one, nine convulsions on the sixth day post partum, after a single injection at the time of labor; all made good recoveries with further intravenous medication. Of the sixty-seven patients admitted as frankly toxic, six developed convulsions. One of these six had a single convulsion six hours after the first injection, with continuous coma, and died undelivered eighteen hours after convulsion; one had a single convulsion ten hours after the injection of 10 cc. of a 10 per cent solution, no further convulsion, and spontaneous delivery twenty-four days later; one had two injections post partum and a single convulsion eight and a half hours after the second injection; one had four injections, a bag induction and three intrapartal convulsions; one had ten injections during one month, a section delivery and one postpartum convulsion; one had four injections in twelve hours after admission, then one convulsion, and a spontaneous delivery of a living child thirteen hours after convulsion. There was recovery in all these after the one convulsion. In twenty-three of the sixty-seven cases we deemed it wise to terminate pregnancy artifically, thirteen times by bag induction and ten times by section, two of the sections being done in order to sterilize at the same time, one because of abruptio placentae, and three because of dystocia. We have not had any accidents or severe reactions attributable to the drug in well over 1,000 injections.

DR. J. MILTON SINGLETON, Kansas City, Mo.: We have watched with interest the reports of Drs. Miller and Martinez on their work with liver extract. Dr. Major has done a great deal of work with liver extract in hypertension, and we were doubtful about Dr. Miller's tremendous dosage, having seen, in hyptertension, patients who had severe reactions with very small doses. We had used a liver extract in three cases of mild late toxemia before Drs. Miller and Martinez published a report of their first series of cases. Good results in the lowering of blood pressure were observed, and the patients continued on through an uneventful pregnancy and labor. These patients seemed to be more of a nephritic type, being discharged with relatively high blood pressures—from 140 to 150. Since their last report we have used weekly doses of 10 cc. intramuscularly in several cases of mild toxemia without the occurrence of eclampsia. There are fulminating cases which show little liver injury at autopsy.

DR. WILLIAM J. DIECKMANN, St. Louis: Since Dr. Dorsett introduced the intramuscular injection of magnesium sulphate in 1920, we have been using it in all our eclamptic patients. To date, including our own cases, Dr. Dorsett has reported about 120 cases with a gross mortality of approximately 14 per cent. Our mortality in the severe cases is approximately 11 per cent. Dr. Stander states that 0.1 Gm. of magnesium sulphate per kilogram of body weight is not toxic. Dr. Dorsett has given as much as 240 cc. of a 25 per cent solution, intramuscularly, in twenty-four hours, which is equivalent to 60 Gm. I myself think that that amount is dangerous. I have seen one patient die of magnesium sulphate poisoning. The most we have given is 40 cc., which is equivalent to 10 Gm. Usually we can control the convulsions with from 15 to 20 cc., but we do not rely on magnesium sulphate alone. We give dextrose intravenously, 1,000 cc. of a 20 per cent solution, two or three times a day, and I have never seen this fail to produce a diuresis. We do not pay any attention to the blood pressure. It is compensatory and takes care of itself when diuresis is once established. So far as the pregnancy is concerned, I should like to emphasize that conservative treatment in the hands of general practitioners will give the best results. Certain patients have to be individualized and cesarean section may be done in a few cases. On the whole, however, conservative treatment will give excellent results. One should not forget colonic irrigation and gastric lavage, leaving magnesium sulphate in the stomach, and, as soon as the latter is emptying itself, the use of Karo syrup in 10 per cent solution by mouth or through a nasal tube. I was glad to hear Dr. Stander state that magnesium sulphate in small doses does not affect the blood constituents—it does not clinically. We have followed its use very carefully. I should like to reiterate that magnesium sulphate in moderate doses, intramuscularly, will control the convulsions in eclampsia. Morphine will do likewise, but one has to give an almost overwhelming dose to control the convulsions. Magnesium sulphate in the uremic convulsions of children must be given intravenously to stop the convulsions. Therefore, it seems that the factor causing the convulsions in eclampsia is not an increased intracranial pressure.

DR. J. P. GREENHILL, Chicago: Three years ago I reported a study of all the eclamptic patients at the Chicago Lying-In Hospital for a period of eight and one-half years. At that time the mortality was 7.7 per cent. Most of the work was done by specialists, who favored emptying the uterus whenever they saw fit. I emphasized that for the general practitioner we favored conservatism. Since that time we have had twenty-seven cases of eclampsia, of which twenty-three were treated with magnesium sulphate. Fourteen patients were treated with magnesium sulphate intensively and every one of those patients recovered. Nine were treated insufficiently (at least we considered it so) with magnesium sulphate, and there were three deaths. Two of the patients died within a few hours after admission, and the third patient recovered from the eclampsia but died some time later from sepsis, so we have a total of three deaths in twenty-seven, a mortality of 11.1 per cent. I agree with Dr. Dieckmann that conservatism is to be employed in the vast number of cases. I feel, however, that specialists should empty the uterus as soon after the first convulsion as possible, and the method will depend on the condition of the patient, the state of the cervix and the size of the baby. I should like to emphasize one point, and that is the use of local anesthesia. At the Chicago Lying-In Hospital, most of our cesarean sections are done under local anesthesia, and we employ local anesthesia whenever possible in treating eclamptic patients, not only for cesarean sections, but also for other forms of delivery. I believe we have definitely decreased our morbidity and most likely our mortality by using local anesthesia. I should like to take exception to one statement made by Dr. Dieckmann. I believe that gastric lavage, colonic irrigations, severe purgation before delivery and too frequent and extensive venesection are often harmful. Sweating is especially dangerous for toxemic patients.

DR. H. J. STANDER, Baltimore: I hope I have made it plain that I have not tried to evaluate the therapeutic value of magnesium sulphate. I have left that to the other clinics, where large series of cases have been and are being treated by magnesium sulphate. All I have attempted to do was to establish the toxicity level of magnesium sulphate experimentally as far as I could. As we all know, almost any drug when given in too large a dose may become toxic, and I felt that somebody should work out the toxicity level of magnesium sulphate. I can conclude by saying that I feel that when magnesium sulphate is used in the limits that I have indicated, serious injury cannot be done to the patient. I am not in a position to state whether or not magnesium sulphate has been beneficial in eclampsia. That is left for the other men who are working on the drug. I am very glad that Dr. Greenhill mentioned local anesthesia. I think it should be emphasized that when radical intervention is employed (and there are such cases), local anesthesia or perhaps spinal anesthesia is the anesthetic of choice, and in no case would I use general anesthesia. This has been shown by De Lee and others in this country.

GAUCHER'S SPLENOMEGALY

WITH ESPECIAL REFERENCE TO SKELETAL CHANGES *

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Gaucher's disease is a rare, congenital, familial, constitutional disorder, possibly of lipoid metabolism, in which complex lipoids fail of complete disintegration and are stored in the reticulum cells of the lymphatic-hematopoietic system. The well known clinical manifestations are great enlargement of the spleen, enlargement of the liver, brownish pigmentation of the exposed parts of the skin, wedge-shaped thickenings of the conjunctiva near the cornea, marked hemorrhagic tendency, and characteristic blood changes, especially leukopenia and thrombocytopenia. Not only is the disease a familial one but the disposition to gross skeletal changes may also be familial, as has been shown by Ludwig Pick.[1] The interest in Gaucher's disease has recently been revived by the description of this gross osseous form of the disease; by finding additional aids to making the clinical diagnosis; by the determination of the chemistry of the so-called Gaucher substance, and by the defining of the relation of Gaucher's disease to the Niemann-Pick type of splenomegaly and of the latter to the infantile form of amaurotic family idiocy.[2]

Gaucher's[3] original theory (1882) that this disease is a primary epithelioma of the spleen has been abandoned. Collier[4] (1895) believed that the cells were endothelioid and found that the retroperitoneal lymph nodes were similarly involved. Picou and Ramond[5] described their case as a benign endothelioma of the spleen which later became malignant and involved the lymph nodes. Bovaird[6] in 1900 first reported the familial character of the disease and also called attention

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* Read before the Section on Practice of Medicine at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 14, 1928.

1. Pick, Ludwig: Die Skelettform (ossuäre Form) des Morbus Gaucher, Jena, Gustav Fischer, 1927.

2. Pick, Ludwig: Der Morbus Gaucher und die ihm ähnlichen Erkrankungen, Ergebn. d. inn. Med. u. Kinderh. **29**: 519, 1926.

3. Gaucher, E.: De l'epithéliome primitif de la rate; hypertrophie idiopathique de la rate sans leucémie, Thèse de Paris, 1882.

4. Collier, William: A Case of Enlarged Spleen in a Child Aged Six, Tr. Path. Soc. London **46**: 148, 1895.

5. Picou, R., and Ramond, F.: Splénomegalie primitive, épithéliome primitif de la rate, Arch. de méd. expér. et d'anat. path. **8**: 168, 1896.

6. Bovaird, David: Primary Splenomegaly, Endothelial Hyperplasia of the Spleen: Two Cases in Children: Autopsy and Morphological Examination in One, Am. J. M. Sc. **120**: 377, 1900.

to the lesions in the liver. Brill, Mandlebaum and Libman,[7] in their report of the fifth case in the literature, noted the large Gaucher cells in the bone marrow. Schlagenhaufer[8] in 1907 considered the condition a systemic disease of the lymphatic-hematopoietic system. Marchand[9] studied the cells in this disease very carefully and reached the conclusion that they are filled with a semisolid, hyaline substance; he considered the process as due, not to hyperplasia or tumor formation but to the deposition of some foreign substance in the cells. To summarize the pathologic lesions, we may state that the disease is limited to the liver, spleen, lymph nodes and bone marrow, in which the characteristic histologic features are found. These organs are filled with large uninuclear or multinuclear cells with a fibrillar cytoplasm.

In 1916, Mandlebaum and Downey[10] proved conclusively the origin of Gaucher cells from the reticulum of the lymphatic-hematopoietic system, and they were also the first to suggest that the disease was fundamentally some disturbance of metabolism. Owing to the difficulties of lipoid chemistry, they left the nature of this Gaucher substance unsettled, but recently E. Epstein,[11] and more particularly Hans Lieb,[12] have presented strong evidence to show that this substance is a sphingogalactoside called kerasin, formed by the linkage of lignoceric acid, sphingosin and *d*-galactose. They also found that the Gaucher cells contain a large amount of alcohol-soluble but ether-insoluble phosphatides. Their observations have been confirmed by the finding of the same substance, "kerasin," by others (Cushing and Stout,[13] Bloom and Kern,[14] Klercker[15] and, recently, Beumer[16]).

Fig. 1.—Section from the spleen showing the large cells typical of Gaucher's disease diffusely distributed in the splenic pulp and sinuses; note the multinuclear cells in the sinuses; reduced from a photomicrograph with a magnification of 125 diameters.

Our own material consists of eleven cases of Gaucher's disease observed during the past twelve years. Six of these patients showed roentgen changes in the bones, as recorded in the accompanying table.

CLINICAL MANIFESTATIONS

The symptoms in Gaucher's disease may be silent for a long time or may appear very early in life. Although the disease is congenital, the severity may vary within wide limits. One of our recent patients was found to have a large liver and spleen discovered in the course of a casual physical examination made after an automobile accident. In most of the cases the complaints are due to (1) enlargement of the liver and spleen; (2) involvement of the bones and joints (pain, limp, disability); (3) the results of the blood changes, such as anemia or hemorrhagic diathesis (purpura, epistaxis, hemopericardium). Brownish pigmentation of the exposed parts of the skin is found in most cases.

The so-called pingueculae are not as constant a feature of the disease as was thought by Brill,[17] as four of our eleven cases of Gaucher's disease did not show pingueculae. More particularly, such pingueculae have not occurred at all in infants suffering from Gaucher's disease. We have, however, been able to confirm Brill's original observation of the occurrence in certain instances of pigmented scars, the result of hemorrhagic furuncles.

The blood changes are characteristic. Anemia may or may not be present. If found, it may be due to the hemorrhagic diathesis, or may be the result of increased blood destruction in the spleen or of widespread changes in the bone marrow (so-called myelophthisis). In our experience the leukocytes are always diminished in number. The differential blood count is about normal. A striking feature of the blood is the constant thrombocytopenia or low platelet count. The blood platelets rarely number more than 125,000. They may be considerably reduced and show this state by the development of severe hemorrhages in the form of purpura, epistaxis and bleeding gums. After splenectomy, however, the characteristic low platelet count and leukopenia become normal. The hemorrhagic tendency led to a prominent, almost fatal, complication in one of our cases. The patient developed an enormous hemorrhagic pericardial effusion, and we obtained a dramatic result by aspirating 1,800 cc. of bloody fluid from the pericardial sac.

Except for a slight diminution of cholesterol, the chemical condition of the blood is usually normal.

DIAGNOSIS

The diagnosis of Gaucher's disease may be established (1) by bone marrow puncture; (2) by splenic puncture; (3) by splenectomy, or (4) by roentgen examination of the bones. By the clinical observations and course alone the diagnosis cannot be made with absolute certainty. A biopsy on the peripheral lymph nodes does not show the characteristic pathologic lesions; in fact, the peripheral lymph nodes are seldom enlarged.

7. Brill, N. E.; Mandlebaum, F. S., and Libman, E.: A Case of "Splénomégalie Primitif" with Involvement of the Haemopoietic Organs, Proc. New York Path. Soc. **4**: 143, 1904.
8. Schlagenhaufer: Ueber meist familiär vorkommende, histologisch characteristiche Splenomegalien (Typus Gaucher), Virchows Arch. f. path. Anat. **187**: 125, 1907.
9. Marchand: Ueber sogenannte idiopathische Splenomegalie (Typus Gaucher), München. med. Wchnschr. **54**: 1102, 1907.
10. Mandlebaum, F. S., and Downey, H.: The Histopathology and Biology of Gaucher's Disease (Large-Cell Splenomegaly), Folia hæmat. **20**: 139, 1916.
11. Epstein, E.: Beitrag zur Chemie der Gaucherschen Krankheit, Biochem. Ztschr. **145**: 398, 1924.
12. Lieb, Hans: Cerebrosidspeicherung bei Splenomegaly, Typus Gaucher, Ztschr. f. physiol. Chem. **140**: 305, 1924.
13. Cushing, E. H., and Stout, A. P.: Gaucher's Disease, Arch. Surg. **12**: 539 (Feb.) 1926.
14. Bloom, William; and Kern, Ruth: Spleen from Gaucher Disease, and Lipoid Histiocytosis: The Chemical Analysis, Arch. Int. Med. **39**: 456 (March) 1927.
15. Klercker, K. O.: Beiträge zur Kenntnis des Morbus Gaucher besonders in klinischer Hinsicht, Acta. pædiat. **6**: 302-351, 1927.
16. Beumer, Hans: Zur Chemie der Gaucher Substanz, Klin. Wchnschr. **7**: 758 (April) 1928.
17. Brill, N. E.: Primary Splenomegaly: With a Report of Three Cases Occurring in One Family, Am. J. M. Sc. **121**: 377, 1901.

1. Bone marrow puncture was done in two cases (1 and 5), and was found to be a safe procedure. Smears and sections of the bone marrow showed the typical cells (fig. 1).

2. Splenic puncture was done in one of our series of cases by Dr. Mark S. Reuben,[18] who published a report of the case in 1924. Since then the spleen in this case has been removed by Dr. John Linder at the Brooklyn Jewish Hospital.[19]

3. Splenectomy was done on two patients (2 and 4) and the typical histologic picture of Gaucher's disease was found on section of the spleen (fig. 2).

4. The roentgen changes in the bones will be described later.

THE VALUE OF SPLENECTOMY

The value of splenectomy depends on several factors: 1. The general condition of the patient must always be taken into consideration; for example, patients who are cachectic may not survive the operation. 2. The presence of anemia is another important indication. The anemia is not necessarily due to the loss of blood as a result of the hemorrhagic diathesis; the anemia is in part due to the extensive involvement of the bone marrow, and in part to the blood destruction that occurs in the spleen. 3. The hemorrhagic diathesis per se may become an indication for splenectomy, as the thrombocytopenia may bring about a marked hemorrhagic tendency. The indication for splenectomy in such cases would be similar to that for thrombocytopenic purpura hemorrhagica. 4. The weight of the spleen as such may become so burdensome that it may become advisable to remove it.

Splenectomy does not prevent the progress of the disease nor does it prevent the development of bone changes. On the contrary, in children, following a splenectomy, a relatively early development of skeletal changes has been observed (Klercker's [15] case and case 4). In one of our patients splenectomy was performed at the age of 3, and four years later bone changes in the head and neck of both femurs began to appear. On the other hand, the most exquisite bone changes we have seen occurred in a patient now 49 years of age in whom the spleen was never removed. Splenectomy may therefore be indicated to relieve certain symptoms of Gaucher's disease, i. e., the anemia, the hemorrhagic diathesis or the burdensome weight of the organ, but it cannot be considered a curative measure.

DIFFERENTIAL DIAGNOSIS FROM OTHER FORMS OF HEPATOSPLENOMEGALY

Banti's disease, kala azar, leukopenic myelogenous leukemia, tuberculosis of the spleen, visceral syphilis, echinococcus cyst of the spleen and Hanot's cirrhosis may resemble Gaucher's disease in certain respects. In older persons the additional presence of pingueculae may be confusing. One must rely on the clinical course and the laboratory observations to exclude kala azar, leukopenic leukemia (characterized by the presence of premature myeloid cells), and tuberculosis (characterized by leukocytosis and occasionally polycythemia). In syphilis the positive Wassermann reaction and the normal blood picture are helpful. There is also a rare form of syphilis of the spleen which resembles Banti's disease. In the thrombocytopenic type of Banti's disease [20] the symptoms are more intense, and hematemesis is common; purpuric manifestations are less frequent, and hepatomegaly is unusual. The anemia occurs early, whereas in Gaucher's disease it is a late manifestation or the result of hemorrhage and bone changes. In the remaining two types of Banti's disease (the thrombocythemic and the other with cirrhosis of the liver), the liver is never enlarged. Hanot's cirrhosis of the liver is accompanied by jaundice and leukocytosis, neither of which is present in Gaucher's disease. Bone changes do not occur in these types of splenomegaly except rarely in tuberculosis of the spleen.

LIPOID CELL HYPERPLASIA OF THE SPLEEN

In diseases in which the lipoid content of the blood is increased, such as diabetes, obstructive jaundice and nephrosis, large foam cells containing lipoid may replace the splenic pulp almost completely. The lipoids found in the reticulo-endothelial cells in these cases are those which circulate in excess in the blood (neutral fat, cholesterol and its esters, and phosphatides). Such lipoid cell hyperplasia of the spleen in diabetes resembles the results of the experimental feeding of cholesterol in animals, but has really no relation to Gaucher's disease. One of us with Fishberg [21] has published a report of such a case with a discussion of its relation to the Gaucher type and to the Niemann-Pick type of splenomegaly.

Fig. 2 (case 1).—Smear from bone marrow obtained by puncture, showing the characteristic fibrillar structure of the cytoplasm of the Gaucher cells.

Another rare congenital, familial and constitutionally caused anomaly of lipoid metabolism with enlargement of the spleen is the lipoid cell splenohepatomegaly of Niemann-Pick,[22] which occurs only in infants. In Niemann-Pick's disease, the pathologic metabolic products, largely phosphatides (lecithin), are deposited especially in the liver and spleen; the deposition, however, is not restricted to lymphatic-hematopoietic organs but may occur in the cells of all other tissues, for exam-

18. Reuben, M. S.: Gaucher's Disease, Arch. Pediat. **41**: 456 (July) 1924.

19. We are indebted to Dr. Linder and to Dr. S. R. Blatteis for permission to use the subsequent history of this patient.

20. Rosenthal, Nathan: Clinical and Hematologic Studies in Banti's Disease: The Blood Platelet Factor with Reference to Splenectomy, J. A. M. A. **84**: 1887 (June 20) 1925.

21. Oppenheimer, B. S., and Fishberg, A. M.: Lipemia and the Reticulo-Endothelial Apparatus, Arch. Int. Med. **36**: 667 (Nov.) 1925.

22. Kramer, Benjamin: Lipoid-Cell Splenohepatomegaly, Niemann-Pick Type: A Clinical Analysis of Nine Cases with a Report of One Additional Case, M. Clin. North America **11**: 905 (Jan.) 1928. Corcan, P.; Oberling, Ch., and Dienst, G.: La maladie de Niemann-Pick, Rev. franç. de Pédiat. **3**: 789-828 (Dec.) 1927.

ple in the epithelial cells, in the ganglion and glia cells, and even in cartilage cells. The overloading of the tissues with these abnormal lipoid metabolic products disturbs the functions of the organs and leads to early exhaustion of the cells and death within the first two years of life. It is remarkable that four out of the eleven reported cases of the Niemann-Pick type of splenomegaly have been combined with the infantile form of amaurotic family idiocy,[23] a disease first described by Bernard Sachs[24] in 1887. Apparently Niemann-Pick's disease may occur without amaurotic family idiocy and probably amaurotic family idiocy without splenomegaly, but there is strong pathologic evidence that when they occur together the disturbance of lipoid metabolism is the common factor in the two.

Fig. 3 (case 2).—Gaucher's disease: The heads of both femurs are flattened and deformed; there are areas of bone condensation and rarefaction, and the medullary cavity of the right femur is greatly enlarged and the corticalis is thin.

DIFFERENCES BETWEEN GAUCHER'S DISEASE AND NIEMANN-PICK'S DISEASE

There are certain differences between Gaucher's disease and Niemann-Pick's disease which have been pointed out clearly by Pick.[25] In Gaucher's disease the disturbance of lipoid metabolism results in the storage in the reticulum cells of the spleen, liver, lymph nodes and bone marrow of a cerebroside called kerasin. In Niemann-Pick's disease there is an abnormal accumulation of phosphatides with an increase of other lipoids, especially cholesterol, not, however, confined to the reticulo-endothelial apparatus but distributed in certain instances in all possible cells of the body. Infants suffering from this disease die of the disease itself always within the first two years of life. Patients with Gaucher's disease have been known to live up to the age of 59 and usually die of some intercurrent disease. Moreover, the morphology of the cells is different in the two diseases; the Gaucher cells tend to be wrinkled and are often multinuclear, whereas the cells of Niemann-Pick's disease appear vacuolated or foamlike. Both diseases show a predilection for the female sex and both occur preponderantly in the Jewish race, but the instances of Gaucher's disease are less restricted to that race than are the cases of Niemann-Pick's disease. There are, therefore, these three diseases—splenomegaly of the Gaucher type, splenomegaly of Niemann-Pick type, and certain instances of the infantile form of amaurotic family idiocy—all of them rare, congenital, familial, preponderantly racial, predominating in the female sex and fundamentally constitutional, associated with or due to anomalies of lipoid metabolism.

BONE CHANGES

The gross skeletal changes that were first described by Ludwig Pick[26] in 1922 were also present in our cases; namely, gibbus (case 3); pathologic fractures of the long bones (cases 2 and 3); palpable thickening of the bone (cases 2 and 5); apparent deformity of the hips (cases 1 and 2). The patients complain of pains in the bones, stiffness and a limp due to involvement of the long bones near the joints, especially the hip or knee joints. During the period of acute symptoms, one finds on examination of the acutely involved bones swelling, bone tenderness, occasional redness, and limitation of motion of the joints. The swelling and tenderness may be so marked, and the condition may resemble osteomyelitis to such an extent that patients have been actually operated on (case 2 and one reported by Moschcowitz[27]). In Moschcowitz's case the periosteum at operation was found to be elevated by old blood.

A stunted appearance and lack of physical development have been noticeable in two cases of Gaucher's disease that we have seen. Patient 2, from his appearance and from his low basal metabolism (—16 per cent), is apparently suffering from a certain grade of hypothyroidism. We have observed the same stunted appearance in another case of splenomegaly which corresponds clinically to the Gaucher type. In this case there has not been any opportunity to confirm the diagnosis absolutely by roentgen examination or by puncture of the bone marrow, but the patient has an enlarged spleen, an enlarged liver, marked leukopenia, definite thrombocytopenia, and slight pingueculae. In the literature of Gaucher's disease there are evidences of the association of this disease with physical and mental underdevelopment. This has been already noted by Reuben[18] in an earlier publication of case 2 of our series, and he has called attention to similar instances published by others. Collier[4] reported the case of a girl who, at the age of 6, weighed only 23 pounds, or 10.4 Kg. (the spleen weighed 4 pounds 2 ounces, or 2 Kg.). One of Bovaird's[6] familial cases was a girl, aged 13, who, when first observed, weighed 70 pounds (32 Kg.) "She did not grow in stature or gain in weight. The mental condition after three years (at the age of 16) was that of a child." Kraus[28] has recorded two cases; a girl, aged 17, who was small, weak and pale, had never menstruated and had no pubic hair, and a girl, aged 1 year, 50.5 cm. long, who weighed only 2,700 Gm. and in whom the diagnosis of nanosomia

23. Pick, Ludwig; and Bielschowsky, M.: Ueber lipoidzellige Splenomegalie (Typus Niemann-Pick) und amaurotische Idiotie, Klin. Wchnschr. **6**: 1631 (Aug. 20) 1927.
24. Sachs, B.: On Arrested Cerebral Development, with Special Reference to Its Cortical Pathology, J. Nerv. & Ment. Dis. **14**: 541-553, 1887. Sachs, Bernard; and Hausman, L.: Nervous and Mental Disorders from Birth Through Adolescence, New York, Paul B. Hoeber, 1926.
25. Pick, Ludwig: Ueber die lipoidzellige Splenohepatomegalie Typus Niemann-Pick als Stoffwechselerkrankung, Med. Klin. **23**: 1483 (Sept 30) 1927.
26. Pick, Ludwig: Zur pathologischen Anatomie des Morbus Gaucher, Med. Klin. **18**: 1408-1409 (Nov.) 1922.
27. Moschcowitz, Eli: A Case of Gaucher's Disease, Proc. New York Path. Soc. **24**: 18, 1924.
28. Kraus, E. J.: Zur Kenntnis der Splenomegalie Gaucher, insbesondere der Histogenese der grosszelligen Wucherung, Ztschr. f. ang. Anat. **7**: 186, 1920.

(dwarfism) was made. Too little is known at present to state whether this physical and mental lack of development is a part of Gaucher's disease; it is more probable that Gaucher's disease is a constitutional factor superimposed on a general constitutional inferiority.

ROENTGENOGRAPHIC CHANGES OF THE BONES

After Pick's observation on the gross changes, it must have occurred to roentgenologists and clinicians interested in Gaucher's disease to attempt to make the diagnosis during life by roentgen examination of the skeleton. Klercker,[15] in association with Junghagen [29] in 1926, was the first to publish the detailed roentgen observations in the bones of a child, aged 3 years, suffering from Gaucher's disease. This is the only case in which the appearance of the hip presented a condition resembling coxa valga. Cushing and Stout,[13] also in 1926, published the report of a case in which there were roentgenographic changes in the right hip. Three months after the splenectomy for Gaucher's disease, the head and neck of the femur were resected and six loose sequestrums were removed; section of the bone marrow showed deposits of Gaucher cells. Since then a familial

Gaucher's Disease Showing Roentgenographic Changes of the Bones

Case	Age and Sex*	Gross Skeletal Changes	So-Called Pingue-culae	White Blood Cells	Plate-lets	Hemor-rhagic Tendency	Diagnosis Made by	Result
1	31 ♂	Sligh.	Present	2,800	110,000	Marked	Bone marrow puncture	Alive
2	21 ♂	Slight	Present	3,900	60,000	Marked	Splenic puncture and splen-ectomy	Alive
3	49 ♀	Marked	Present	3,200	.....	Moder-ate	X-ray of bones	Alive
4	8 ♀	Slight	None	3,900	110,000	Marked	Splenec-tomy	Alive
5	13 ♀	Slight	None	4,200	50,000	Slight	Bone marrow puncture	Alive
6	28 ♀	None	Present	6,300	100,000	Moder-ate	X-ray of bones	Alive

* In this column ♂ indicates male; ♀, female.

case has also been reported by Santee [30] in which the roentgen examination revealed a rarefaction about the head of the left femur, and in the pubic and ischial rami. (Von Mueller [31] mentions a case which presented severe destruction of the hip joint, simulating tuberculosis, but which subsequently on histologic examination of the spleen proved to be Gaucher's disease.)

Our own material consists of six additional cases, presented in the accompanying table, one of which was previously reported in 1924 by Reuben,[18] who made the diagnosis of Gaucher's disease on material obtained by splenic puncture. In these six cases various bones have been found involved by roentgen examination (figs. 3 to 6). In one patient the vertebral column was extensively involved with a gibbus and a compression fracture of the eleventh dorsal vertebra; there were three other pathologic fractures of the long bones (fig. 6), which had united, and almost the whole of the rest of the skeleton except the skull [32] presented roentgenographic evidence of rarefaction. The latter may have been due to an atrophy of disuse, as the patient is now crippled. We can confirm Pick's [1] observation that only the bodies of the vertebrae and not the intervertebral cartilages become involved in Gaucher's disease—a valuable point in the differential diagnosis from Pott's disease of the spine, in which both the cartilaginous disks and the vertebrae may become destroyed.

In all our other cases the bone involvement was less extensive. In two of the other cases (1 and 2) the femurs and tibiae were involved, and in case 2 the humeri, the fibulae, and the pubic and ischial bones were also involved. In the shaft of the long bones the line of demarcation between bone marrow and spongiosa may no longer be seen on roentgen examination; there are areas of rarefaction and condensation giving a mottled appearance, with expansion of the bone and thinning of the cortex. In three instances (cases 1, 2 and 4) the head and neck of the femurs also presented a mottled appearance. In case 1, the heads of the femurs showed a mushroom-like contour; both necks were shortened, causing an upward displacement of the shafts, and presenting a coxa vara appearance. The roentgenographic changes in the two remaining cases (4 and 5) showed an apparently characteristic bilateral, fusiform expansion of the lower third of the femurs. This club-shaped widening of the lower femur (fig. 4) was noted in four of our six cases; it seems at present to be a valuable diagnostic point, and was the only roentgenographic change in the bones in two of our cases. In these two cases the first roentgenographic change in the bones was the diffuse expansion of the lower third of

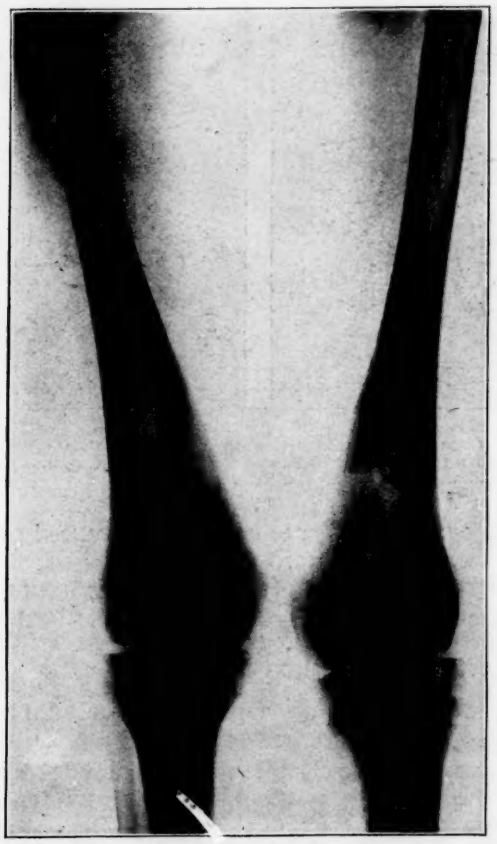

Fig. 4 (case 2).—The distal quarter of each femur presents a characteristic fusiform expansion with a bulge toward the inner condyles. There are areas of condensation higher up, and lower down there are areas of marked rarefaction which involve the metaphyses and the condyles.

29. Junghagen, S.: Roentgenography of Bone Changes in Gaucher's Disease, Acta. radiol. **5**: 506-516, 1926.
30. Santee, H. E.: Gaucher's Disease with Report of Two Cases in Brothers, Ann. Surg. **86**: 707 (Nov.) 1927.
31. Von Mueller, Friedrich: Problems of Disease of the Joints, Arch. Int. Med. **40**: 419 (Oct.) 1927.
32. One of Pick's patients had marked involvement of the skull at necropsy.

the femurs, especially toward the internal condyles, obliterating the normal contour; this should be looked for as apparently an early roentgenographic sign, whereas the mottled, worm-eaten appearance is probably

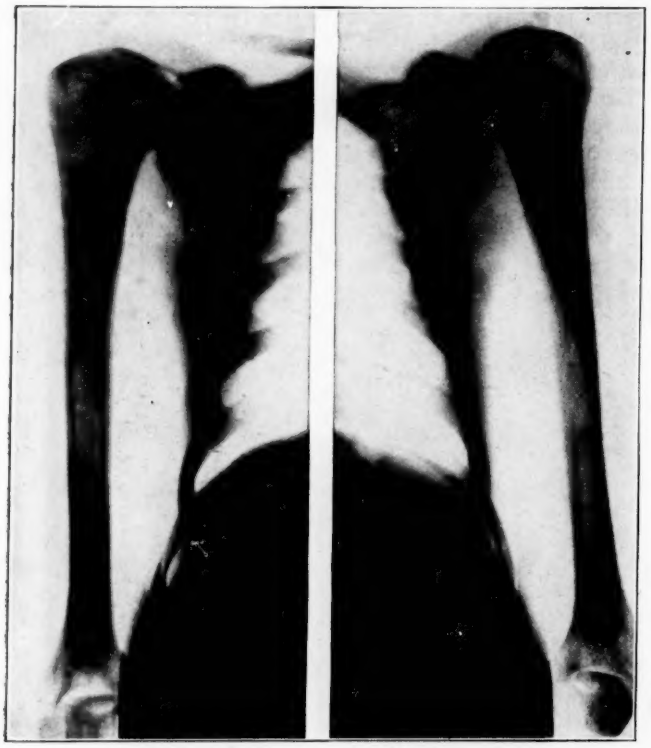

Fig. 5 (case 2).—Both humeri show some rarefaction of the heads, lower down marked condensation, and then an abrupt transition into rarefaction with widening of the medullary cavity.

roentgenographic evidence of a more advanced stage of involvement of the bone.

In view of the relative frequency of roentgenographic changes in the bones in Gaucher's disease, every patient with splenomegaly of obscure origin should be subjected to a roentgen examination of the skeleton.

INTERPRETATION OF THE ROENTGENOGRAPHIC OBSERVATIONS

The characteristic changes that have been observed in the long bones are a mottling, rarefaction, at times condensation and expansion of the bone, a disappearance of the demarcation between bone marrow and cortex, and a marked thinning of the cortex, but usually not a direct destruction of the cortex due to an invasion of the disease. There has not been sufficient opportunity as yet to study the successive order of the roentgenographic changes and to correlate them with the pathologic bone changes as described by Ludwig Pick. The earliest roentgenographic changes we have noted have been slight changes in the head and neck of the femurs, and a fusiform enlargement of the distal third of the femurs. This cone-shaped widening of the shaft of the long bones is undoubtedly due to the gradual growth of the Gaucher tissue, consisting of Gaucher cells, fibrous transformation, necrosis, hemorrhage, and blood extravasation. It should be emphasized that the bone changes due to Gaucher's disease are neither inflammatory in nature nor neoplastic, but the result of a metabolic disturbance in which the mere growth of the cells gradually expands the bone from marrow to cortex. The cortex is thus mechanically thinned but not aggressively invaded and destroyed as it is by malignant neoplastic disease. The mottling and vacuolated appearance of the bone which we have usually seen in the more advanced stages is probably due to calcium-poor foci which permit greater penetrability of the bones by the x-rays. This rarefaction probably explains the osteoporotic appearance of the bones. The spontaneous, so-called pathologic fractures are not due to actual invasion of the cortex but are the result of relatively slight trauma to a markedly thinned cortex. These fractures resemble the familiar spontaneous fractures in osteitis fibrosa cystica of von Recklinghausen. The so-called coxa vara (in one instance coxa valga) observed repeatedly is not a primary local deformity but probably a secondary static effect caused by the relatively increased load borne by the diseased and weakened bone. The arthritis of the hips which Pick, Cushing and Stout, and we have noted is probably also secondary.

MICROSCOPIC CHANGES IN BONE MARROW

The deposition of Gaucher cells in the bone marrow was first described in 1904 by Brill, Mandlebaum, and Libman [7] by the histologic examination of autopsy material. Risel [33] first described macroscopic changes; he observed grayish white foci diffusely distributed in the grayish red bone marrow of the femur. These changes are trivial in comparison with the extensive macroscopic changes found by Pick in the gross skeletal form of the disease. The microscopic bone marrow involvement with Gaucher cells has been observed at necropsy in every instance in which it has been sought for, and in practically every bone. This bone marrow involvement does not have any characteristic relation to the stage of the disease, and may occur in the skeletal system, even in infancy. The involvement of the marrow in different bones may be very unequal. The Gaucher tissue may occur as isolated cells, as nodules, or as diffuse infiltrations of the marrow without distinct delimitation. A fact first noted by Brill, Mandlebaum and Libman is a striking change in the shape which the Gaucher cells

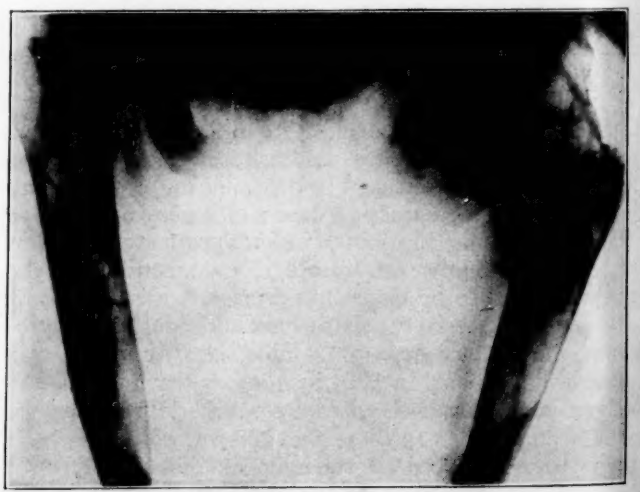

Fig. 6. (case 3).—Exquisite example of marked bone changes: Expansion of both femurs, with extreme thinning of the cortex, and a spontaneous fracture of the left femur with deformity.

assume in the bone marrow; that is, they appear as elongated, spindle-shaped elements, as if compressed. Pick, however, believes that the fascicular arrangement of the Gaucher cells is not due to compression but is a peculiarity of the growth of these cells in bone marrow.

33. Risel, W.: Ueber die grosszellige Splenomegalie (Typus Gaucher) und über das Endotheliale Sarkom der Milz, Beitr. z. path. Anat. u. z. allg. Path. **46**: 241, 1909.

DIFFERENTIAL DIAGNOSIS FROM SOME OTHER DISEASES WITH BONE INVOLVEMENT

Other diseases that may be accompanied by changes in the bones are lymphatic and myelogenous leukemia, multiple myelomas, chloroma, and a peculiar variety of anemia that is associated with osteosclerosis of the entire skeleton. There are also bone conditions, such as tuberculosis of the spine, tuberculous coxitis, rheumatoid deforming arthritis, acute osteomyelitis, multiple malignant bone metastases and osteitis fibrosa cystica (von Recklinghausen), any of which may cause some difficulty in diagnosis. It should be mentioned that in the leukemias there are at most only slight periosteal elevations, and of course the blood picture is quite different from that in Gaucher's disease. In chloroma the spleen is enlarged but usually not huge; the bone changes are only subperiosteal, and the blood changes of myeloblastic leukemia are always present. A large spleen and large liver are not necessarily present in multiple myelomas, multiple malignant bone metastases, osteitis fibrosa cystica, or most of the other diseases mentioned. The characteristic leukopenia and thrombocytopenia of Gaucher's disease are never present in the foregoing bone conditions. The roentgenographic appearance of the bones in these disorders is usually quite different from that of Gaucher's disease. In fact, the roentgenographic appearance of the bones when present in Gaucher's disease is so characteristic that the roentgenologist may suspect the disease from his examination alone.

There is also a rare familial disease with splenomegaly and bone changes of which Cooley [34] has collected seven cases. In this disease the roentgenographic changes of the bones seem to occur in transverse layers. The first three cases reported by him resembled von Jaksch's anemia; the remaining four rather suggested an atypical hemolytic jaundice.

CONCLUSIONS

1. Roentgenographic changes in the bones in the course of Gaucher's disease are not uncommon, and are of value in establishing the diagnosis. In six of our eight cases which were examined by the x-rays, characteristic bone changes were found. The commonest early change was a fusiform expansion of the lower third of the femurs.

2. Gross skeletal changes, such as gibbus and pathologic fractures, are rare. We have observed only one well marked instance.

3. Gaucher's disease, Niemann-Pick's disease, and possibly the infantile form of amaurotic family idiocy (Tay-Sachs) are congenital, familial, constitutional disturbances of lipoid metabolism.

4. Splenectomy in Gaucher's disease cannot be considered a curative measure. It may, however, be of value in relieving the anemia, the hemorrhagic diathesis, or the burden to the patient of the spleen itself.

124 East Sixty-First Street.

ABSTRACT OF DISCUSSION

DR. HARRY C. SCHMEISSER, Memphis, Tenn.: As to the incidence of Gaucher's disease, Steiner found twenty-one cases on record; Krumbhaar found twenty-three cases; Pick found thirty-two cases and the authors report on ten cases. Therefore, they have had access to one third of the cases recorded in the literature. As to the new skeletal changes, Steiner does not mention skeletal changes in those cases previously reported. Krumbhaar likewise does not mention any skeletal changes. Up until 1916, when Dr. Knox, Dr. Warr and I published our paper on Gaucher's disease, contributing two cases in infancy and bringing the number at that time to eighteen, there had been no mention of skeletal changes. We did not find any skeletal changes. It is true that the Gaucher cell had been described by Brill, Mengelbaum and Dedman for the first time in the bone marrow, but no osseous changes had been observed. The present authors found these newer osseous changes in five or six cases. In one case they found gross changes. They found a roentgenographic change in five or six cases of such a nature as to be of diagnostic value. With regard to splenectomy in Gaucher's disease, Steiner says that there were eight authentic cases of splenectomy with apparent improvement in three. Krumbhaar says that there were eleven cases of splenectomy with apparent improvement in seven. The present authors tell us that splenectomy does not cure the condition, because several years after splenectomy they found that the osseous changes appeared for the first time, showing that the process was progressive. The third and last point of the paper that I wish to comment on is the two different forms, one the splenomegaly that Gaucher described in 1882. Up until 1916, at the time Knox, Warr and I published our paper, we had heard only of the splenomegaly of the Gaucher type. It is true we called attention to one case reported by Niemann in 1914 which was unique, occurring in an infant, as did our two cases, and having some other unusual features. However, they were all classified as splenomegaly of the Gaucher type. This was done particularly because Mengelbaum had classified Niemann's case under that head and ours, being like Niemann's, was also classified in that group. Shortly after our publication had appeared Mengelbaum and Downey stated that our two cases were not to be considered as splenomegaly of Gaucher type.

Fig. 7 (case 3).—The tibiae and fibulae show rarefaction and expansion with thinning of the corticalis. The right tibia also presents an area of condensation.

DR. B. S. OPPENHEIMER, New York: One of the patients whose case was reported by Knox, Warr and Schmeisser had amaurotic family idiocy, and a cherry red spot in the fundus. These signs are frequently associated with this disease, and will probably help in the study of amaurotic family idiocy, which has been a puzzling disease for many years. We took up this

34. Cooley, T. B.; Witwer, E. R., and Lee, Pearl: Anemia in Children with Splenomegaly and Peculiar Changes in the Bones, Am. J. Dis. Child. 34: 347 (Sept.) 1927.

question of Gaucher's disease again because the important work up to 1919 was done by American authors. After that, observations were made on the skeletal changes by Pick of Berlin, and on the chemistry of the spleen by Epstein and Lieb. We thought, therefore, that we would review the whole subject again, especially in view of our relatively large clinical material. There is no doubt in my mind that in former years we did miss the bone and skeletal changes in Gaucher's disease, because as soon as our attention was called to this possibility, we found them quite frequently after roentgen examination. Occasionally even gross changes were observed.

Clinical Notes, Suggestions and New Instruments

THE TECHNIC OF RIB RESECTION AND OSTEOMYELITIS OF THE RIB ENDS *

EDWARD D. CHURCHILL, M.D., BOSTON

My attention was called to the desirability of describing my technic of subperiosteal rib resection by the experience of a single day when I operated on two patients with chronic empyema in whom the persistence of the sinus was found to be due to the sequestration of the ends of the ribs. The advantage of a subperiosteal resection lies not only in the protection which it affords against tearing a nonadherent pleura but also in the fact that the intercostal vessels and nerve are separated from the rib with the posterior layer of periosteum and are thus protected from injury. It must be considered an error of operative technic if the intercostal vessels are wounded during the performance of a simple subperiosteal rib resection.

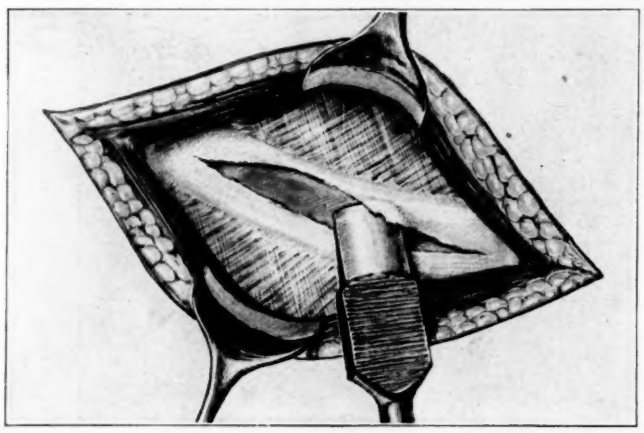

Fig. 1.—Elevation of the periosteum after a single longitudinal incision.

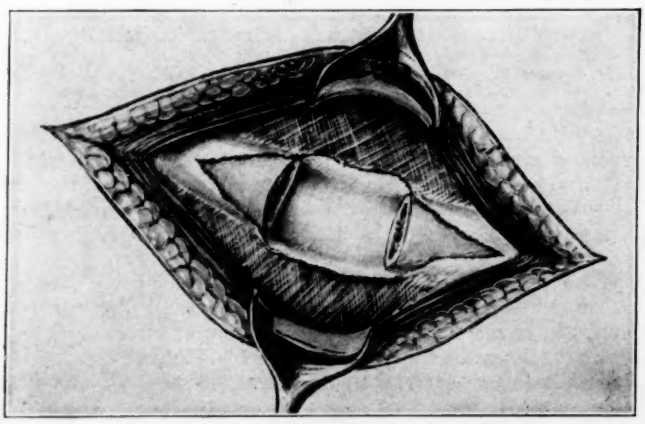

Fig. 2.—Ends of the rib left devoid of periosteum by usual operative technic.

In the operation which is usually described and figured, a longitudinal incision is made through the periosteum overlying the rib. The anterior layer is then reflected by a periosteal elevator (fig. 1). The posterior layer is then freed by the Doyen raspatorium and a section of the rib removed with a costotome. The result of such a procedure is shown in figure 2, drawn from the illustrations of the operation in the two standard textbooks of thoracic surgery. As a result of the single longitudinal incision, V shaped areas of the ends of the ribs have been left devoid of periosteum.

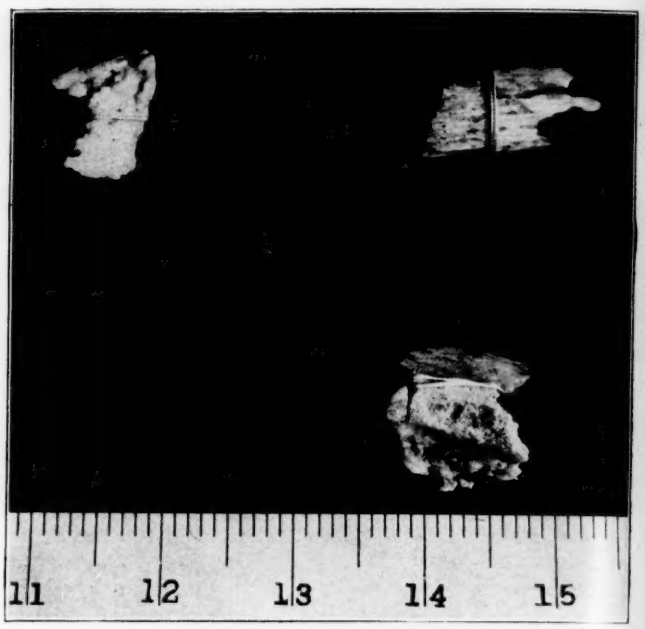

Fig. 3.—Sequestrums from rib ends removed from a small empyema cavity at a secondary operation.

When such bare areas of rib are left exposed in an infected chest wound, it is obvious that sequestration may occur with subsequent separation of the devitalized fragments and their retention in the empyema cavity. In the two cases mentioned, such fragments had acted as foreign bodies and maintained persistent sinuses for more than a year. The size of the residual empyema cavities in these cases was minimal and, but for the fragments of bone, they would undoubtedly have closed spontaneously. The sequestrums recovered from one of these cases in which two ribs had been resected at an operation for empyema a year before are shown in figure 3. The smooth edges cut by the costotome can clearly be seen and the irregular

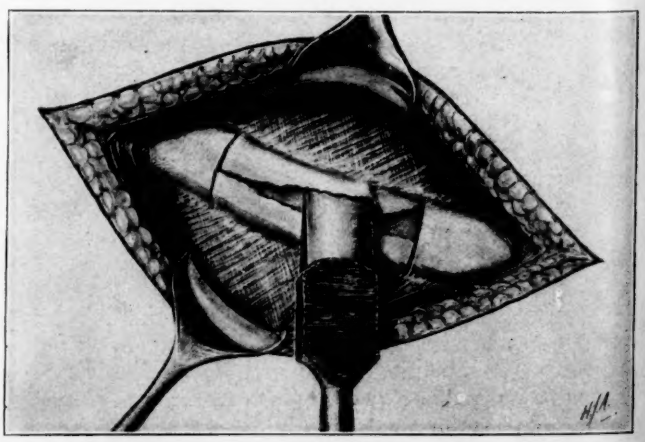

Fig. 4.—The addition of transverse incisions leaves the ends of the rib squarely covered by periosteum.

* From the West Surgical Service, Massachusetts General Hospital.

outline of the opposite ends marks the line of sequestration from the viable portion of the rib stump.

In order to avoid this complication, it has been my custom to separate the periosteum from the rib in the manner shown in figure 4. A transverse incision is made at each end of the longitudinal one, allowing the periosteum to be elevated in the form of two flaps. This technic facilitates a clean reflection of the periosteum, and, in addition, gives a line for the section of the rib by the costotome which leaves the cut ends of the rib squarely covered by periosteum.

A deliberate attempt to cover the ends of the rib by suturing flaps of periosteum over them has been described in the literature. Such a procedure in my opinion not only is time consuming but, by the introduction of suture material, may actually invite infection. The very simple technic here described seems adequate, and it is my belief that its observance will not only facilitate the operation but will aid in the prevention of a certain number of chronic sinuses after the drainage of empyemas.

EXFOLIATIVE DERMATITIS FROM ACETARSONE (STOVARSOL)

JEFFREY C. MICHAEL, M.D., HOUSTON, TEXAS

Since its introduction in 1922 by Levaditi, acetarsone (stovarsol) has been given extensive clinical trial. It has been found useful in syphilis, yaws, malaria, amebic infections and several other diseases. It is a pentavalent arsenical compound with a high arsenic content and is administrable by mouth. It was introduced primarily as a spirillicidal remedy and it produces favorable clinical effects on syphilitic lesions, but experience has shown that it is not as effective as the trivalent arsphenamine compounds.

Fig. 1.—Exudative dermatitis with edema of the face following the ingestion of two tablets of acetarsone.

It is capable of producing untoward effects, among the most common being malaise, fever, edema, abdominal pain, jaundice, diarrhea, albuminuria, coryza, bronchitis and skin disorders.[1]

1. Bender, W. L.: Stovarsol (Spirocid) Poisoning, Am. J. M. Sc. **174**: 819 (Dec.) 1927.

Among the dermal manifestations, urticaria and erythema have been most often noted. Less than a half dozen cases of exfoliative dermatitis due to acetarsone have been reported, and therefore a brief report of a case of this nature seems warranted. An additional reason for recording the case is that the causative relation of the drug to the skin disease was overlooked by several physicians who saw the patient before I did.

REPORT OF CASE

History.—Mrs. R., aged 36, seen, July 1, 1928, had a skin eruption of more than two months' duration. She had not experienced any serious illness for years, but for the past eighteen months she had been treated by several physicians for mucous colitis. Besides other measures, she had been taking a tablet (later found to be acetarsone) three times daily after meals. She began using this drug about April 1, 1928, and it had been kept up until I saw her. In the early part of June, 1928, she noticed a moderately itching eruption on the dorsum of the right hand. In two or three days the eruption involved both hands and then rather rapidly invaded the forearms, face and neck. At the same time she had moderate cramplike abdominal pain and nausea. She saw her physician, who thought that the eruption was rhus dermatitis and prescribed local applications. The eruption, however, steadily increased in severity and extent. She had taken about 22 Gm. of acetarsone up to the time of the onset of the eruption and about double that amount when I first saw her.

Fig. 2.—Appearance of the hands after administration of acetarsone.

Examination.—The eruption was nearly universal, only the soles of the feet remaining unaffected. The face, neck, forearms, dorsum of the hands, elbow and genitocrural folds presented an exudative dermatitis. The face was puffy, the eyelids were swollen, and there was a seropurulent conjunctivitis. The scalp was covered with a heaped up scaly deposit, while the remainder of the cutaneous surface was dry, moderately infiltrated, reddened, rough to the touch (because of small follicular papules) and shedding fine brawny scales. The skin appendages were not affected. The patient was admitted to St. Joseph's Infirmary and later moved to Hermann Hospital. Physical examination did not reveal any noteworthy abnormalities. Several urinalyses were without significant results. The blood counts showed only moderate leukocytosis, and there was no eosinophilia. Examination of the feces did not show any ova or parasites. Blood chemical estimations, July 6, showed 100 mg. of sugar, 40 mg. of nonprotein nitrogen, 17 mg. of urea and 1.5 mg. of creatinine per hundred cubic centimeters. A phenolsulphonphthalein test (intravenous injection) gave 25 per cent in the first specimen and 19 per cent in the second.

Treatment and Course.—Local treatment consisted of the application of diluted solution of aluminum subacetate to the exudative parts and calamine liniment to the dry areas. A milk and fruit juice diet, alkalization and sodium thiosulphate by

mouth were the systemic measures employed. The acetarsone was stopped.

Under this treatment there was progressive improvement and the patient was sent home in about two weeks practically free from symptoms. She was home for about a week when the eruption appeared suddenly, and she returned to Houston. It was then found that she had taken two tablets of acetarsone contrary to instructions. When seen this time the eruption had invaded only the face and arms. It quickly receded under the previous treatment and thiosinamine given intravenously.

The patient, who was rather dubious about the influence of the medicine on her skin disorder, then consented to take some of it for the purpose of clearing up any doubts about it. Two tablets of acetarsone, each 0.25 Gm., were given, one at 10 a. m., the other at 2 p. m. About eight hours after the second dose she experienced burning and itching of the face and arms; these parts became congested and exudative, the eyelids were swollen, and there was moderate abdominal cramping and diarrhea (figs. 1 and 2). This outbreak receded completely in five days under the previously employed remedies. She returned home, and a recent letter stated that no further trouble had been experienced.

The administration of acetarsone may be attended by the usual symptoms of arsenical poisoning, including skin manifestations. Among the latter, exfoliative dermatitis is the most important but rarest. Skin disorders may occur as the result of idiosyncrasy, as in the case of Schwartz, who after only one tablet (0.25 Gm.) had a severe urticarial outbreak, or as the result of cumulative action, as in the present case. It would seem from the recorded experiences, as well as the present case, that the exfoliative dermatitis from acetarsone is a milder disorder than that resulting from the arsphenamines.

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METHOD OF POSITIVE SHADOW DIFFERENTIATION

WILLIAM J. MANNING, M.D., WASHINGTON, D. C.

It is sometimes difficult if not impossible for the physician and roentgenologist to differentiate shadows appearing on an x-ray film when viewed in the anteroposterior, postero-anterior or lateral aspects. Especially is this difficulty made manifest in depressed fractures of the skull or when foreign bodies are in apposition over or into an organ or are embedded within the bony structure or contiguous tissue, because all the images are flat as viewed in the picture and more or less merged with one another.

Fig. 1.—Treated roentgenograms showing positive shadows.

The method mentioned may be described in brief in the following manner: The plate or film of the part is made according to the ordinary and accepted procedure, care being taken that the negative is marked in a definite manner as to the view taken. The film is then taken to a photo-engraver and a metallic transfer is made, previously backed by a screen in order that the high and low lights may be well marked out by the engraver's screen and to withstand better the pressure exerted against the metallic film. This plate is then well inked by means of a roller utilizing the ordinary printer's ink for this purpose. Over the inked surface is then placed a sheet of chalk overlay board which is comprised of a series of sheets of paper impregnated with powdered chalk on each side of the paper compress. Pressure is exerted against the prepared paper and metal plate by means of an ordinary letter press with a screw lever and an impression is obtained on the paper film described, the object being to have an absolute level surface on the impressed contact.

The chalked board impression is then removed and subjected to a solution of chlorinated lime and water. The constant dipping into the chlorinated bath of the prepared paper film is continued until the high lights, being very thinly coated with chalk, are etched away first, followed by the second lights, which, being more heavily covered with chalk, are then made "to show up" at their proper level. This second stage is followed by the etching away of the still more heavily coated low lights as in turn their levels appear, according to the method followed in the halftone press overlay work as now practiced.

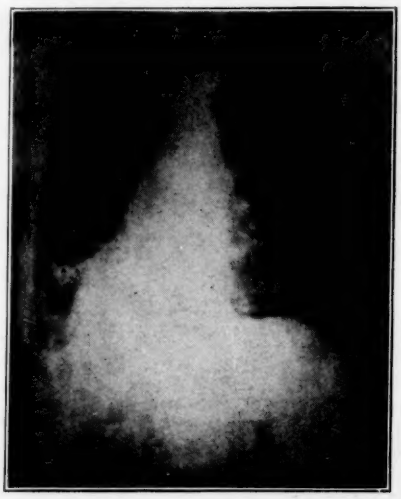


Fig. 2.—Original halftone of photograph from which the shadow markings were made shown on figure 1.

The resulting treated paper film, after drying, is passed through an automatic calibrated paper thickness meter. Notation is made of the various shadow thicknesses and the figures are marked with pen and ink on the paper film as shown by the meter for future guidance of the diagnostician and interpretation as concerns the respective shadows.

In the present instance the shadow distances are calibrated in thousandths of a millimeter, the basic distance control point being placed on the margin of the paper film as shown in the illustration and marked 0.000 mm. The marked measured points noted on the respective illustrations are prefixed with a given serial letter in order to distinguish the markings or respective calibrations.

The accompanying illustration of a roentgenographic halftone was taken from the Veterans' Bureau publications of recent date. The letters B. S. followed by a given number are the identifying numbers or markings of the United States Bureau of Standards, which measured the respective shadow distances for me, as shown in the tabulation, by means of a paper meter.

Difference in Thickness, in Millimeters, of Gelatin Layer Between Number Point A and Points Lettered B to J Inclusive *

		A	B	C	D	E	F	G	H	I	J
B. S.	1	0.000	0.124	0.001	0.120	0.115	0.117	0.087	0.122	0.084	0.116
	2	.000	.123	.036	.118	.114	.118	.098	.121	.091	.118
	3	.000	.124	.128	.118	.129	.125	.090	.117	.082	.134
	4	.000	.125	.098	.112	.095	.121	.110	.085	.078	.101
	5	.000	.126	.107	.078	.120	.118	.119	.112	.122	.098
	6	.000	.101	.090	.102	.097	.105	.101	.108	....	....
	7	.000	.098	.084	.084	.093	.097	.096	.073	.099	.093

* These values are accurate to 0.002 mm. at 20 C. Only one of the specimens listed from A to J is shown in this article; lack of space prohibits publication of other possile exhibits printed in the table.

I am indebted also to the U. S. Army Medical Museum, division of photography, which made the photographic print shown here, and to George H. Carter, public printer, and his various division chiefs, who have helped in the various processes as well as in times past in research work that I have undertaken.

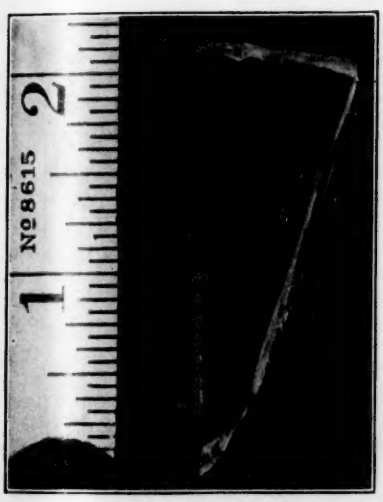
Hotel Washington.

FOREIGN BODY IN THE GLOTTIS

MARVIN D. SHIE, M.D., CLEVELAND

April 3, 1928, a man, aged 29, was sent to the U. S. Marine Hospital at Cleveland for tonsillectomy. Because of a full schedule it was impossible to care for him the following day and it was planned to remove his tonsils, April 5. On this date, however, the house surgeon reported that the patient's tonsils were inflamed, his throat was slightly edematous, and there was an apparent abscess of the lower pole of the left tonsil.

Examination showed a large and somewhat injected left tonsil which seemed to be pushed slightly forward. The right tonsil was somewhat injected, and the uvula and the posterior pillar of the left tonsil were slightly edematous. At the lower pole of the left tonsil there was a mass of whitish yellow material which seemed to be tonsillar secretion. When an attempt was made to wipe this out, the applicator encountered some resistance. It was then thought that the mass might be a tonsillar calculus and it was grasped with forceps. The forceps dislodged it slightly and it was then apparent that a large foreign body was present. Further examination revealed a foreign body extending from the lower pole of the left tonsil obliquely downward and backward across the left extremity of the epiglottis, over the glottis and ending in the right pyriform fossa. The end resting at the base of the left tonsil was engaged with the forceps and, after some manipulation, the mass was removed without much difficulty. It was found to be a triangular piece of plate glass measuring 2¼ inches by 1 inch. The edges and the point were very sharp and the whole piece was covered with a tenacious white purulent matter. The patient had had no idea that there was a foreign body in his throat, but when questioned further he gave the following history:



Piece of glass removed from glottis. Note the sharp edges.

Dec. 11, 1927, at Columbus, Ohio, he was thrown through a windshield in an automobile accident and sustained lacerations of the left side of the neck and concussion of the brain. He was taken to a Columbus hospital and a piece of plate glass 1½ inches by ½ inch was removed from the wound and the wound closed. He received hospital treatment for one week and wound dressings for three weeks more, at the end of which time the wound had closed and he returned to his work as furnace installer. Ever since the accident he had experienced difficulty in talking—he said that it seemed as if he "were talking in a box"—and he had had a large amount of mucopurulent discharge from the throat. Each morning he would find his pillow wet with it. He also noted difficulty in swallowing; he stated that he could never swallow the last bite but always had to spit it out, and his throat seemed swollen inside. He complained also of occasional pains radiating up each side of the neck to the ears and occasionally he spit up some blood. He had felt much better during the past four weeks but still had considerable soreness in his throat. He finally applied to the Veterans' Bureau for treatment for chronic sore throat and was sent to this hospital for tonsillectomy.

The glass had entered at a point on the left side of the neck opposite the first molar tooth and between the mandible and the hyoid bone, at which point there is now an irregular stellate scar 1½ inches in diameter. The wound had healed nicely and the scar is not at all prominent. The foreign body had passed obliquely downward and backward through the structures of the neck, somewhat miraculously avoiding some rather important ones, and had entered the throat just below the lower pole of the left tonsil, at which point there is now a white scar. The sharp point cut through and lacerated the left posterior third of the epiglottis, folding the cut and free border back on the concave surface as it passed on to embed its point in the right pyriform fossa. It then lay across the glottis, resting on the aryepiglottic folds with its blunt end engaged in the tissues below the lower pole of the left tonsil, its sharp end embedded in the right pyriform fossa and its anterior flat side against the lacerated and posterior surface of the epiglottis. It remained in this position for 116 days, its sharp edges occasionally irritating the tissues to cause slight bleeding, and all the time causing moderate irritation of the throat, swelling of the left tonsil, and slight edema. The wonder is that it did not produce sufficient edema of the glottis to cause serious trouble. It is quite apparent why the patient felt as though he were talking in a box and why he experienced occasional pains in the neck radiating to his ears.

April 12, a tonsillectomy was done under local anesthesia. The left tonsil was surrounded by an area of brawny induration and the tonsil itself was infiltrated with considerable scar tissue. No further glass was encountered. The patient made an uneventful recovery and left the hospital six days later perfectly well.

1657 Larchmont Avenue, Lakewood.

IODIDES AS AN AID TO THE DIAGNOSIS OF MIXED SALIVARY GLAND TUMORS *

ROBERT I. HILLER, M.D., CHICAGO

Tumors of the neck offer a fertile field for speculation from the diagnostic point of view. In contributing the experiences associated with the appended case of mixed tumor of the submaxillary gland, I am not attempting to enter into the long list of possibilities. A similar observation has not been found recorded in the textbooks on pathology in relation to this type of tumor.

REPORT OF CASE

J. J. E., a widower, aged 38, an automobile mechanic, seen, March 11, 1928, complained of a urethral discharge of twenty-four hours' duration. The condition proved to be nongonorrheal and cleared up very readily in the course of a few days. An incidental finding on this first occasion was a tumor of the left submaxillary region, which, the patient stated, had been present for eighteen years but had not noticeably increased in size until after 1926. It had always been firm; its size had not varied before or after meals, and the only discomfort it had occasioned aside from the cosmetic disfiguration had been the rare interference with articulation and deglutition. On palpation, the tumor was firm, elastic but not cystic, unattached to the skin, but apparently attached to the deeper structures. Additional observations were: irregular and unequal pupils, which reacted slowly to light; coarse tremor of the hands; absent knee jerks and achilles jerks; a positive Romberg sign; a palpable right epitrochlear lymph node; somewhat increased aortic dulness, and a relaxed anal sphincter. The patient stated that the left pupil had been smaller than the right for a number of years. The anal sphincter relaxation manifested itself by a partial incontinence for gas and liquid stools, especially after heavy meals. There was no history of a chancre, although the patient stated that there had been an attack of gonorrhea six years previously. A bilateral fracture of the mandible had been sustained twelve years before and the mandible was still a bit out of alinement at the sites of the fracture.

The patient's wife had died six years previous of carcinoma of the liver. There had not been any pregnancies or miscarriages.

The urine contained a small amount of mucus; otherwise it did not present any abnormalities.

Blood was drawn for serologic examination, and on March 12 the Wassermann reaction was reported 3 plus in the cholesterinized antigen, and negative in the lipoid and syphilitic antigens; the Kahn reaction was 2 plus.

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* From the Leon Klein Fund of the Michael Reese Hospital and the Nelson Morris Institute for Medical Research.

The tumor of the submaxillary region gave the impression of being a mixed salivary gland tumor; but in spite of the long duration it was felt that the serologic report and the physical observations pointing toward syphilis cast a small shadow of doubt over the diagnosis. The patient was unwilling to submit to another Wassermann test and would not consider a spinal fluid examination. As a therapeutic test, therefore, it was decided to try the effect of potassium iodide on the tumor. Five drops of the saturated solution three times a day was prescribed. This amount was to serve as a test dose, the intention being shortly to increase the dose to 15 drops three times

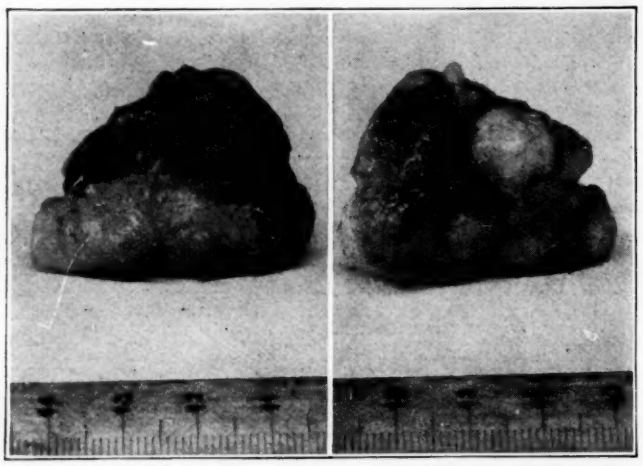

Fig. 1.—Mixed tumor of submaxillary gland: superficial and deep surfaces; natural size; cut longitudinally.

a day. The medication was started, March 17, and after five doses of 5 drops had been taken, the whole submental region became swollen and the tumor became softer and enlarged by about half its original size. A small tumor about 3 cm. in diameter appeared just to the right of the larynx. The patient became much alarmed but, as the tumor had shown such a marked reaction, he was convinced that it was being affected by the medication and conceded to its continuation. By March 19 the swelling of the submental region had subsided, the tumor had decreased to a size slightly smaller than its original dimensions, and only a small nodule was palpable to the right of the larynx. The potassium iodide was continued for three weeks in a dosage of 5 drops of the saturated solution three times a day. By March 28 the tumor had decreased by about one third of its original size. After that date no change was noted.

June 2, the patient was admitted to the Michael Reese Hospital for removal of the tumor. The physical observations varied little from those at his first examination except in relation to the size of the tumor. The urine was again normal; the blood pressure was 110 systolic and 76 diastolic; the red blood cells numbered 4,150,000; hemoglobin, 75 per cent, and the white blood cells, 10,200; with neutrophils, 72; small mononculears, 24, and large mononuclears, 4 per cent.

The tumor was removed under local anesthesia without difficulty. It was well encapsulated, very vascular, loosely attached by connective tissue in its superficial portion, but attached by a firm white cord about 0.5 mm. in diameter at its depth. This cord could not be satisfactorily traced since it retracted when ligated and cut.

The patient was discharged from the hospital, June 3, and made a very satisfactory recovery. At the present time, the left pupil is about equal to the right in size.

PATHOLOGIST'S REPORT

The tumor was examined in the pathology laboratory of the Michael Reese Hospital and a pathologic diagnosis of mixed salivary gland tumor was made. Grossly, the specimen consisted of a single piece of tissue measuring 4 by 3 by 2 cm. From the external surface there protruded several nodular areas, each about 1 cm. in circumference. These areas were well circumscribed and covered by a thin smooth membrane, but under this membrane very small cauliflower-like masses were visible. On cut section the surface was uniformly grayish white and appeared prominently cellular and very fine; indefinite, wartlike masses were visible beneath the surface.

Microscopically the sections were so taken as to include both the periphery and a considerable portion of the center of the specimen. Both sections were for the most part surrounded by a moderately thick and dense fibrous capsule. In a portion of this capsule there occurred a portion of salivary gland tissue. This was composed of small, closely placed acini, which were of the mucous and serous variety. Beneath the capsule in many fields there occurred a myxomatous stroma in which were embedded numerous irregular cellular masses. The cells composing these masses were of moderate size and were uniform in appearance throughout. They tended to be oval and had a very faintly pink staining cytoplasm. The nuclei also stained palely and were vesicular. Mitoses did not occur. These cells in some fields surrounded colloid-filled spaces and at the periphery of many of the large groups of cells these cells showed a tendency to form small, glandlike spaces. In other fields the stroma was loose and myxomatous, and contained faintly pink staining homogeneous material. At the periphery, unattached to the capsule, there occurred a separate piece of submaxillary gland. This also was composed of two types of acini, both serous and mucous appearing, the latter predominating.

COMMENT

The swelling of a tumor of the submaxillary region following the administration of potassium iodide would suggest the presence of tissue susceptible to the influence of that drug. Aberrant thyroid tissue is frequently found in the submaxillary region and the response of the thyroid to iodides is well known to every clinician. One would, however, expect some systemic reaction in the presence of such a marked local reaction in the case of thyroid tissue. No such response was manifest in this case. A mixed salivary gland tumor would then be the more likely possibility, in spite of the pharmacologic evidence presented by Sollmann[1] and Cushny[2] that the submaxillary gland itself is not ordinarily influenced by the administration of

Fig. 2.—Mixed tumor of submaxillary, consisting of a myxomatous stroma and masses of epithelial cells with a tendency toward alveolar arrangement; hematoxylin and eosin stain; slightly reduced from a photomicrograph with a magnification of 140 diameters.

physiologic doses of iodides. Sollmann does state, however, that when iodides are administered by mouth they may generally be detected in the saliva in from six and one-half to eleven

1. Sollmann, Torald: A Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1926, pp. 883-889.
2. Cushny, A. R.: Pharmacology and Therapeutics or the Action of Drugs, Philadelphia, Lea and Febiger, 1924, p. 526.

minutes. Secretion of saliva is not normally affected by iodide administration, but inflammation of the parotid gland is one of the phenomena of iodism. Cushny further states that in the mouth iodism is often betrayed by swelling and irritation of the throat and tonsils and by salivation, rarely by the swelling of the salivary glands. It appears, therefore, that iodides do pass to the salivary glands, although the glands themselves are not affected except in cases of iodism. However, in the absence of a duct outlet, the tissue would not possess the ordinary means of eliminating the drug and might consequently suffer the reaction that occurred in this case. This possibility was deemed of sufficient importance to warrant the diagnosis of mixed salivary gland tumor in this case.

The inequality of the pupils, which was corrected by the removal of the tumor, might be explained on the basis of pressure on the left cervical sympathetic nerve.

SUMMARY

In a mixed tumor of the left submaxillary gland there was a definite response to the oral administration of potassium iodide, the tumor first increasing and later decreasing in size. This response may prove of value in the differential diagnosis of tumors of aberrant salivary gland tissue.

A CONVENIENT TECHNIC FOR STEAM INHALATIONS *

J. H. MEANS, M.D., BOSTON

For the irritated larynx or trachea nothing is more soothing than the inhalation of steam. Nevertheless, the methods of administering this time honored and simple remedy commonly used seem to me not to be completely satisfactory.

Method of inhaling steam.

The patient is usually invited to insert his or her face into some sort of cone of paper or cloth, communicating with the hot water receptacle. In this way the skin is exposed to the steam no less than the oral and nasal orifices, and this is not only unnecessary but unpleasant, for the skin tolerates the hot vapor less well than the mucous membrane.

To avoid this objectionable feature, the present method was devised. The innovation is merely that the patient breathes the steam throught the mouth by means of a tube, as shown in the illustration.

There is no necessity of providing access to both the nose and the mouth, as few persons respire through these passageways at the same time, at least while they are awake, and of the two the oral route is preferable as its mucous membrane is less sensitive.

The only equipment needed is any sort of metal receptable of two quart or more capacity in which water can be boiled, or boiling water placed, a tube about a foot long and an inch in internal diameter, and a towel. The tube may be of rubber, or, if this is not available, a satisfactory one can be made by rolling up a piece of cardboard one foot square and fastening with elastic bands.

One end of the tube goes in the patient's mouth and the other is held about an inch above the surface of the water. The patient then breathes through the mouth, taking rather deep breaths. The opening of the receptacle is closed to the desired tightness by means of the folded bath towel. At the Massachusetts General Hospital, Miss Annabella McCrae teaches the nurses to drape the towel about the mouth of the receptacle and fasten it with safety pins. She also instructs them to place it in a basin to diminish any possibility of the patient spilling boiling water.

With this simple set-up, the inhalation may be taken not only effectively but comfortably; the patient, if so inclined, may even read meanwhile, thus diminishing the tedium of the period of treatment.

In my opinion, this procedure gives quite as satisfactory results as do the special inhalation apparatus that one finds advertised and has the advantage of costing nothing.

* From the Medical Service of the Massachusetts General Hospital.

Council on Pharmacy and Chemistry

PRELIMINARY REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT.

W. A. PUCKNER, Secretary.

HEPARMONE FOR ECLAMPTIC CONDITIONS

Heparmone is the name applied by Eli Lilly & Co., to an acid alcohol extract of liver. The firm presented details of manufacture of the product and method for its standardization. The preparation has been used experimentally in studies of hypertension, but the firm restricts its recommendations at this time to the use of Heparmone in eclamptic conditions and does not ask for consideration of the experimental work in hypertension.

Drs. Miller and Martinez, from the Department of Obstetrics, University of Pittsburgh School of Medicine, read a paper on their use of Heparmone in preeclamptic conditions and eclampsia before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Ninth Annual Session of the American Medical Association at Minneapolis, June 14, 1928. This paper was presented to the editor of THE JOURNAL for publication and he suggested to the authors that they ask the firm to submit the product to the Council on Pharmacy and Chemistry so that a preliminary report relative to the product might be published simultaneously with their paper. The latter appears on page 627 of this issue of THE JOURNAL.

Miller and Martinez report 255 consecutive cases, designated as preeclamptic (those without convulsions) and having a systolic blood pressure above 140, treated with Heparmone. Of the 255 cases, 101 were considered mild, ninety-five moderately severe, and fifty-nine severe cases. There were eighty-four patients who had nephritic toxemia and who showed no improvement in the blood pressure or urinary condition but were allowed to continue the pregnancy and went into labor spontaneously. Four developed convulsions and died. Of forty-three consecutive patients with eclampsia treated between Oct. 1, 1926, and June 4, 1928, three died (a mortality of 6.9 per cent). Brief abstracts of the histories of the patients who died in this preeclamptic group and of the forty-three cases in the eclamptic group are reported. (Fifteen were reported in the *American Journal of Obstetrics and Gynecology* **14**:165 [Aug.] 1927; *Atlantic Medical Journal* **31**:141 [Dec.] 1927). In some instances the systolic blood pressure was above 200 and the diastolic above 100. All had a systolic pressure above 140. While the patients were under observation and receiving Heparmone there was a marked lowering of the blood pressure, in some cases a very marked lowering. The Council's referee reported that he finds it difficult to credit the clinical improvement in the cases submitted as due largely to the administration of Heparmone, since similar improvement may result without the use of the preparation.

The product is not acceptable for New and Nonofficial Remedies because there is insufficient evidence at hand concerning its therapeutic value. Since the product is not being marketed, the Council has postponed action to await further evidence and has authorized publication of this preliminary report. The Council holds that the product should not be recommended to the general profession until its value or promise has been demonstrated by further clinical trial in obstetric clinics where there are men trained in the experimental method of medicine.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 23, 1929

THE MORTALITY FROM TUBERCULOSIS

Programs for reform or human betterment call for many contributory factors: there must be due appreciation of the situations that are involved, adequate information of the needs to be met, and study of the forces that obstruct and the provisions that may be expected to overcome resistance. Success calls for enthusiasm on the part of the promoters, usually for intense, protracted effort in the face of reactionary beliefs or traditional indifferences. In the domain of public health as in other realms of humanitarian effort labor, no doubt, brings its own rewards. Regardless of how one may interpret this platitude, a concrete evidence of progress, a definite proof that the objective desired is being approached, affords the most satisfying as well as the most stimulating encouragement to the pioneer. From this point of view there is much that is heartening in many of the records of man's conquest of disease and in the recent history of disease prevention. Thus many persons still living can recall when the attack on tuberculosis seemed all but hopeless. Until within recent times it stood at the head of the list of all the communicable diseases, in the number both of those who are infected and of those who die. Today tuberculosis is responsible for about one out of every ten deaths that occur in the United States.

During the past forty years there has been a marked decrease in the number of deaths from tuberculosis both relatively and absolutely. The figures for deaths per hundred thousand range from more than 300 in the early eighties of the last century to about ninety in the present decade. One may debate long as to what has been responsible for this marked benefit. A student of disease prevention [1] has remarked that it is quite probable that this marked decrease in deaths from tuberculosis has not been wholly due to increased knowledge concerning tuberculosis and to the measures which have been inaugurated as a consequence for its prevention and control; nevertheless, it seems logical to assume that they have had greater influence than any other factor. While it is true that some unknown cause may have been operative in reducing the number of deaths, it still remains probable to Waite that this influence is of the lesser importance.

The attack on the disease is changing. In the past the tuberculosis problem has been in the main regarded as a medical problem. In the last few decades it has become more and more evident that the problem can be approached through improvement in social conditions. The records recently published by Robey and Falk [2] of the University of Chicago are encouraging; they are also instructive in indicating some of the directions for further attack against the malady. The records of the Chicago epidemiologists bring the welcomed proof that there has been a 50 per cent decline in the tuberculosis death rate for Chicago since 1900. In Chicago, where there is a large negro population, so that factors of racial influence may be considered statistically, the negro death rate for pulmonary tuberculosis, as is usually the case, is from two and a half to three times as high as the rate for the white population in the corresponding years. The marked declines in the tuberculosis mortality in the last twelve years have been in the age periods 0 to 11 and 20 to 60. The lowered mortality in the first few years of life is due to a marked decrease in the number of deaths from forms of tuberculosis other than pulmonary. The declines in the rates after 20 years of age are due to reductions in the death rates from pulmonary tuberculosis.

There is food for reflection in the opinions ventured by Robey and Falk regarding the causes of the declines that have been noted not only in Chicago but also throughout the United States in general. In the first place, they aver, it may be due to the fact that tuberculosis, attacking the less resistant population over a period of years, eliminates the less fit stocks and prevents their reproduction. In the second place, the fall in the tuberculosis death rate in Chicago and elsewhere may be due to improvements in the general well being of the population and to active campaigns against tuberculosis. The amazingly high mortality from tuberculosis among negro children discovered in Chicago implies that the racial tuberculization of the negro has not yet proceeded to the point necessary to confer adequate resistance on the child exposed to serious hazards of infection, that the opportunities for massive infection in childhood are far greater among the negroes than among the whites, that the general "vital resistance" to tuberculous infection is far lower among negro children, or that combinations of these factors are operative and that facilities for early diagnosis and care of the tuberculous are inadequate. That there has been a marked decline since 1916 in the death rate

1. Waite, H. H.: Disease Prevention, New York, Thomas Y. Crowell Company, 1926.

2. Robey, Lucile; and Falk, I. S.: A Statistical Study of the Mortality from Tuberculosis in the City of Chicago, J. Prev. Med. 2:79 (March) 1928.

from forms of tuberculosis other than pulmonary for the early years of life is generally accredited to infant welfare programs, to important improvements in the sanitary qualities of the milk supply, to the general improvement of conditions under which the children develop, and to possible changes in the classification of disease.

DANGERS OF FASTING

Of the various environmental factors on which man depends for existence and growth, the diet particularly is amenable to manipulation. One may eat as much or as little as one wishes of good food or bad. The exercise of this privilege has led to striking dietary extremes, exemplied on the one hand by the gourmands of the Middle Ages and, on the other, by those who deprive themselves of all food for weeks at a time. The present-day ritualistic practice of fasting has a long history, while voluntary abstinence from food as a therapeutic measure is likewise extremely old. The Egyptians are said to have been the first to attribute disease to some agent taken by mouth, a kind of food poisoning. Since the pathogenic substance reached the body through the gastro-intestinal tract, the logical way to shield the organism against disease was to refrain from eating for a period of time. This theory was given credence by the loss of appetite so frequently observed in the sick and by the consequent instinctive refusal of food. As a result of this abstinence from nutriment, the alleged poison supposed to be common to all diseases was presumed to be forced from the body. In other words, it was assumed that fasting had a material purifying effect on the body, a conception which seems to be the cornerstone of the theory of the modern proponents of therapeutic fasting. It seems likely that a similar idea of spiritual cleansing prompted the early religious fasts. The deleterious effects of persistent overeating have long been recognized but reliable evidence on the value or danger of periodic deprivation of food is not so easily found.

As frequently happens, the proponents of such a panacea as fasting have at various times acquired a considerable following, partly because of their personality but also undoubtedly because of the novelty of the procedure and the fact that it is simple and inexpensive. For instance, Upton Sinclair, the novelist, wrote [1] so appealingly of the benefits which he derived from fasting that he influenced a large number to try this type of cure. The opinions and tenets of the master fasters are usually uncritical, without scientific basis, and founded largely on subjective impressions. Being more or less chronic invalids, the members of the cult eschew medical advice and the practice frequently induces conditions which would, under ordinary conditions, be just cause for alarm. According to the advocates of the scheme, any disease, regardless of etiology, known or unknown, will be helped by fasting, with the possible exception of tuberculosis. It has been argued that this procedure rids the body of accumulated poisons, which result from excess nutriment and which clog the organs and blood vessels. Crude as these assertions seem, they apparently are convincing to many people of all grades of intelligence.

Recently Morgulis,[2] on the basis of wide experience with experimental inanition, summarized his views. One of the striking observations was the change in composition of the blood of experimental animals. During fasting, with or without water, there appeared an early rise in the nonprotein nitrogen, which was maintained throughout the period of study. This could not be accounted for by an augmentation in the concentration of the known compounds in the blood, but consisted of the so-called undetermined nitrogen. Moreover, the high level of nonprotein nitrogen could not be attributed to a malfunction of the kidneys. At a time when protein metabolism was low, this increased concentration of blood nitrogen indicated the appearance in the circulation of a foreign nitrogen-containing substance. Further study revealed changes in the inorganic make-up of the blood, notably a decrease in chloride and an increase in bicarbonate concentration. Morgulis points out that the altered chemical picture of the blood produced by fasting bears a striking resemblance to that resulting from intestinal obstruction and that seen during inanition as well as in ileus. A toxicosis occurs, probably produced by proteose circulating in the blood. The change in acid-base balance observed as a result of the detoxication process is also a potential cause of the symptoms observed. On the basis of the foregoing comparisons, the physiologic results of prolonged fasting are brought in line with one of the most serious of pathologic conditions.

It is well known that the bones of rachitic rats show healing if the animals are deprived of food. It has also been shown that during the first twenty-four to thirty-six hours of the fasting period there occurs a marked increase in the inorganic phosphate of the blood which may be accompanied by tetany. Wilder [3] has recently investigated the nature and source of this added phosphate and has found that its origin is outside the blood. He presents strong evidence that the breakdown of the muscle tissue in the course of the fast provides phosphate which induces the healing of the bone and at the same time causes tetany. These studies illustrate the fortuitous nature of certain "cures" and emphasize the possible dangers of therapeutic fasting without a previous consideration of the many factors concerned in the condition being "treated."

The attitude with regard to the functions of food has changed. Its value for producing energy and for

1. Sinclair, Upton: Contemp. Rev. 97: 429, 1910.

2. Morgulis, S.: Verhandl. d. Gesellsch. f. Verdauungs.- u. Stoffwechselkrankh., September, 1928.

3. Wilder, T. S.: J. Biol. Chem. 81: 65 (Jan.) 1929.

building new and repairing old tissue is still recognized, but it is now appreciated that in natural foods there exist substances exerting widespread influence on the organism and taking intimate part in the fundamental metabolism of the cells. The vitamins fall in this category. Moreover, the use of food constituents in elaborating essential endocrine secretions cannot be overlooked. Hormones such as thyroxin and epinephrine are relatively simple compounds closely related to the amino-acids of food protein and probably derived from them. With these facts in mind and on purely theoretical grounds, it seems logical to expect that complete fasting, even for relatively short periods, might result in structural and functional changes, gradual and insidious in their onset but far reaching in their influence.

The appalling effects observed [4] in the central empires of Europe during the World War serve to emphasize the dangers of fasting from another point of view. While it is true that as a consequence of the reduced rations such metabolic diseases as obesity, exophthalmic goiter and diabetes decreased, the cases of myxedema, tuberculosis, osteomalacia and sterility increased greatly. Bodily activity was curtailed and the entire mental outlook was altered. The physiologic effects of this wholesale undernutrition have exerted an inestimably deleterious influence on the lives of the peoples concerned and have, in turn, played a part in the trend of national affairs in the period of reconstruction. In pointing out the hazards of inanition, it might be mentioned that it is a sad commentary on man's intelligence that the circumstances surrounding this dangerous proceeding are largely of his own making.

THE TERCENTENARY OF MALPIGHI

Marcello Malpighi was born, March 10, 1628. Mankind finds occasion to adjust its reminiscences to chronological periods. In the three hundred years since the founder of histology recorded his fundamental observations, much has been learned of the nature of tissues. The microscope has been highly developed during the passing of the centuries. All the more remarkable, therefore, were the studies made by the learned, sympathetic Italian physician—adventurer in the field of the unknown.

In a recent address before the students of the Long Island College Hospital, Prof. Giuseppe Franchini recapitulates the story of Malpighi's investigations and conveys a picture that constitutes a real contribution to the history of medicine. The medicine of 1628 was a far more personal profession than the abstract scientific investigation of today. The promulgator of new knowledge had to defend himself against the hatred, intrigue and petty jealousies of colleagues who were animated not only by their envy of scientific accomplishments but equally by personal feuds and family traditions. Through these circumstances the world lost some of the manuscripts and contributions of Malpighi, but his description of the embryology of the chick, of the histology and physiology of the glands and viscera, of the red blood corpuscles, of the papillae of the tongue, of the malpighian layers of the skin and of the capillary anastomosis between arteries and veins were contributions so important that they constitute in themselves landmarks in the progress of medicine. His name has been preserved also in the malpighian bodies of the kidney and the spleen. In his account Professor Franchini provides the details of the education of the great investigator, of his teaching at Bologna University and at Pisa, and of the recognition which came to him even in that day, when knowledge did not spread throughout the world in twenty-four hours by telegraph, radio and journalism. One sees Malpighi as a patient but insatiably curious investigator. Although he wrote at a time when literary contributions demanded actual physical accomplishment as well as mental output, the available manuscripts of his contributions make more than sixteen thick volumes, the number now in the university library of Bologna.

The death of Malpighi was dramatic. He had suffered repeatedly with headaches, and he foretold a paralytic stroke, telling his friends that death would take him by surprise unexpectedly, dressed and shod. A cerebral hemorrhage paralyzed his right side, July 25, 1694, and a second stroke killed him at the age of 66, on November 29 of the same year. In his contribution Professor Franchini provides an account of the illness and necropsy of the body of Marcello Malpighi taken from the book of a contemporary pupil, Baglivi, himself noted as the first to distinguish, in 1700, between smooth and striped muscle. The records of the last illness and death and of the postmortem are extremely interesting. For instance, the remedies administered following the first stroke included "injection of blood in the left arm but not in the paralytic arm as was generally done, because on Malpighi's body this treatment could not be adopted on account of the many different opinions of the doctors in charge. Cupping glasses were applied to the two scapulas, Cornaco's powder, mustard poultices to the soles of his feet and many other remedies for headache and apoplexies. After forty days of terrible pains, deliriums, faintings and other troubles, he was free from apoplexy, from the above mentioned paralysis, and from every other complaint." Apparently the symptoms increased later, so that Malpighi suffered loss of appetite, tremors and dizziness, and at the slightest excitation burst into tears. He died four hours after the second stroke. The postmortem examination revealed increase in the size of the heart, contraction of the right kidney, dilatation of the pelvis of the kidney, and stone in the bladder. In the cavity of the right ventricle of the brain about two pounds of clotted black blood was found, and in

4. Lusk, Graham: Physiol. Rev. 1: 523 (Oct.) 1921.

the left ventricle yellowish water weighing six ounces, with the blood vessels of the brain everywhere dilated. Sept. 20, 1928, Professor Franchini was permitted by the authorities to open the tomb and coffin of Malpighi. He writes: "We discovered a skull of large size, obviously that of an adult; it was well preserved only in the upper part. The temporalis bone on one side had probably been cut away and we saw a large hole. We also found other bones, chiefly of the legs. There was no trace of the small bones of the skeleton. We found no documents or other objects in the coffin."

Current Comment

FEWER MEDICAL MEETINGS

In Memphis, recently, physicians of the community spent an evening debating the difficulties that have arisen from the fact that too many medical meetings insist on sharing the physician's time. The chief etiologic factor seems to be the insistence of the American College of Surgeons that each hospital graded A must have an organized staff that meets once a month. The secretaries of hospital staffs have been forced to add scientific features to their programs to encourage attendance on these compulsory sessions. Most of the hospitals in Memphis are open staff hospitals, so that all physicians of the city are invited to attend the staff meetings. Memphis, according to the *Memphis Medical Journal*,[1] feels that conditions there differ from those elsewhere in the country and that the American College of Surgeons ought to make an exception of Memphis. Actually the conditions in Memphis in this regard are not nearly so bad as in some other parts of the country. In some cities there are one or two medical meetings every night in the week from October to May. In a city like Chicago, with hundreds of hospitals, with special societies in all the medical branches, with a county society and almost thirty branch societies, with an Institute of Medicine and four class A medical colleges, the demands are almost insufferable. There has always been a plethora of pot-boiling manuscripts offered to the medical periodicals of this country. Since the hospital staff meetings have begun to demand so-called scientific contributions, the plethoric condition has assumed the purplish tinge of a fatal polycythemia. The *Memphis Medical Journal* has several cures to suggest for the present condition, including one joint hospital meeting each month rotating among the various hospitals, limitation of the meetings of the county medical society to one meeting each month, arrangements for joint meetings of the special societies with the county society, and similar amalgamations. Dr. Olin West, secretary and general manager, in his report to the House of Delegates of the American Medical Association last year, called attention to the fact that such multiplicity of meetings is a menace to the functional capacity of the county medical societies and that such overorganization must lead to division of loyalty, dissipation of effort, wasteful expenditures, and obstruction to scientific progress. The report of the Reference Committee of the House of Delegates, which was unanimously adopted, deprecated the compulsory multiple scientific meetings of hospital staff organizations. It pointed out that these meetings have tended to limit to small groups the dissemination of medical information and the discussion of medical problems, interfering thereby with the work of organized medical societies. The committee suggested that the staff meetings of hospitals be devoted preferably to executive discussions of problems relating to hospital economics and records, and that members of the American Medical Association make special efforts to stimulate interest in and the development of scientific medicine in the regularly organized county medical societies. The action taken in Memphis is an indication that the burden of multiple hospital staff meetings is beginning to hurt seriously. When a burden becomes too great or galls too painfully, even a beast of burden or a doctor will throw it off.

1. Editorial, Memphis M. J. 6: 46 (Feb.) 1929.

THE INSTITUTE OF HUMAN RELATIONS

As scientific study of mankind continues to increase in its complexity, investigators are learning more and more that the study of man's reactions to various situations represents a composite which cannot be the purview of any single science. The nature of man must be viewed from the various aspects favored by the physician, the physiologist, the psychologist, the sociologist, the economist and the pathologist. Human behavior is such an intricate performance that it is not to be explained by the freudian, the behaviorist, the follower of Adler or of Jung, or by the mechanist. An indication of the necessity for cooperation in such study is the announcement of President Angell of Yale University that gifts and subsidies representing a capital of $7,500,000 are now available for the establishment in connection with the university of an Institute of Human Relations for the investigation of human behavior from the individual and social points of view. The institute is to be affiliated with both the law and the medical schools and perhaps with other special departments of the university so that students may be trained to think of their professions as concerning human beings rather than test tubes, statute books, codes or creeds. In the development of this institute the Laura Spellman Rockefeller Memorial, the Rockefeller Foundation and the Commonwealth Foundation have cooperated. The dean of the medical school, Dr. Milton C. Winternitz, has welcomed the establishment of the institute because it will give prospective physicians a clearer concept of the aspects of disease and a fundamental training in individual behavior from both biologic and sociologic points of view. Prof. Robert M. Hutchins, dean of the Yale Law School, recognizes the importance of such cooperation for humanization of legal procedure, and the deans of all other departments emphasize the desirability of this movement. The last decade has seen the accumulation of tremendous amounts of data; of intelligence tests; of new psychologic theories; of studies in comparative psychology, in delinquency, in crime and in many other related subjects from which general conclusions have

been drawn that go far beyond the available evidence. It has become apparent that a sifting process is in order so that the student of man may not be lost in a welter of faddism and hypothesis. The organizers of the Institute of Human Relations believe that the time has come for drawing together the important scientific discoveries of the last centuries with a view to the application of this knowledge to the best advantage of mankind as a whole. President Angell as a leader in such studies during the past quarter of a century is an ideal director of such investigations. His conception that the new institute will make important contributions not only in specific additions to knowledge through research but also in breaking down old barriers between the branches of science leads to the hope of more rapid progress toward the humanization of scientific study in the future.

Association News

THE PORTLAND SESSION

The Scientific Exhibit: Special Exhibit of Biochemical Diagnostic Methods

On recommendation and vote of the Advisory Committee of last year, the Committee on Scientific Exhibit has again authorized an exhibit and demonstration of various clinical laboratory methods of a biochemical nature which are used for diagnostic purposes for the Portland Session. Owing to the rather broad scope which these methods cover, the demonstrations will be given in three separate groups. The first group will include the routine tests which every physician may undertake in his own office; the second group will deal chiefly with the chemical blood determinations which have come into wide clinical use; the third group will take up methods primarily of a research character. Demonstrations of the different methods will be given on a definite schedule each day. The exhibit will be under the active charge of Dr. V. C. Myers, professor of biochemistry, Western Reserve University School of Medicine, with the collaboration of Dr. Howard D. Haskins, professor of biochemistry, University of Oregon Medical School; Dr. John A. Killian, professor of biochemistry, New York Post-Graduate Medical School and Hospital; Dr. Joseph H. Roe, professor of chemistry, George Washington University School of Medicine; Dr. Edwin E. Osgood, assistant professor of biochemistry and medicine, University of Oregon Medical School, and Dr. Earl R. Norris, assistant professor of chemistry, University of Washington.

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 10 o'clock in the morning, central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of February 25 to March 2 will be as follows:

February 25. "The Care of the Hands," by Dr. Morris Fishbein.
February 26. "The Naming of New Drugs," by Mr. Cecil Bean.
February 27. "Medical News," by Dr. J. F. Hammond.
February 28. "Patent Medicine Advertising," by Dr. Arthur J. Cramp.
March 1. "The Wife in Business," by Miss Mildred Whitcomb.
March 2. "Parents' Mistakes," by Miss Lois Stice.

Evening Health Hints from Hygeia at 8 o'Clock, Central Standard Time

February 25. Heart Disease Among Children.
February 26. Finding Satisfaction from Eating.
February 27. Warm Feet and Cool Heads.
February 28. What Becomes of the Meat We Eat?
March 1. What to Do for a Sick Child.
March 2. Safeguarding the Family of the Tuberculosis Patient.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Bills Introduced.—Senate bill 46 and house bill 60 create a state barber and cosmetology board and regulate the occupation and practices of barbers, hairdressers, cosmeticians, and electrologists. House bill 4 provides that a hospital caring for any indigent person shall be compensated by the county.

ARKANSAS

Appointment of County Health Officers.—At a meeting of the state board of health in Little Rock, February 3, health officers of forty-nine counties of Arkansas were selected on the basis of recommendations submitted by the county judges; many were reappointments. Health officers for the remaining twenty-six counties, it was announced, will be appointed as soon as recommendations are received from the county authorities.

Bills Introduced.—Senate bill 87 amends the law regulating the practice of nursing by raising the examination fee to $15. Senate bill 65 requires that every applicant for a marriage license furnish a certificate from a practicing physician to the effect that the applicant is free from insanity and idiocy, tuberculosis, and venereal disease. Senate bill 241 regulates the sale of drugs and poisons. House bill 139 provides that confinement of a person in a hospital for nervous disease for a space of two years, and the finding of medical authorities that the person is incurable, shall be grounds for an absolute divorce.

CALIFORNIA

Health at San Diego.—Telegraphic reports to the U. S. Department of Commerce from sixty-three cities with a total population of about 29 million, for the week ending February 9, indicate that the highest mortality rate (26.6) was for San Diego, and that the mortality rate for the group of cities as a whole was 15.9. The mortality rate for San Diego for the corresponding week last year was 20.1, and for the group of cities, 13.6. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large negro population may tend to increase the death rate.

Dr. Evans Awarded Medal.—The city of Philadelphia has awarded the annual John Scott Medal to Dr. Herbert M. Evans, professor of anatomy, University of California Medical School, for work on the antisterility vitamin E, which was done at the university from 1922 to 1927. The John Scott Medal was established nearly 200 years ago by an endowment. The recipient each year is selected by a committee of three members of the National Academy of Sciences, one member of the American Philosophic Society and one member of the University of Pennsylvania. City officials of Philadelphia made the presentation to Dr. Evans recently. Among the other scientists who have received this award since 1920 are the late Dr. Hideyo Noguchi, Madame Curie, Dr. Frederick G. Banting, Orville Wright, Sir Joseph John Thomson, for the development of the physics of the electron, and Francis William Aston, for the development of the mass spectograph and the use of it in the study of isotropes.

Metabolic Clinic at Carmel.—Through the generosity of Mrs. Grace V. Harris, an endowment has been furnished for completely equipped laboratories for research in metabolic diseases at Carmel and for the housing of about twenty-five patients. The building is now under construction. The initial expenditure will be about $200,000, with ample provision for continued maintenance funds for research. The aim will be to increase the knowledge of metabolic diseases and to provide facilities for diagnosis and treatment. The clinic will not be run for profit. The staff at first will comprise Dr. Rudolph A. Kocher (formerly of the Hooper Foundation), University of California, as medical director, and Julian R. Blackman (now at Stanford University School of Medicine), in charge of the roentgen-ray department; the two other appointments are yet to be made. The general plan of the clinic, according to *California and Western Medicine*, will be similar to that of the Scripps Metabolic Clinic at La Jolla.

Bills Introduced.—Senate bill 556 provides for the arrest, without a warrant and on probable cause, of alleged insane persons. Senate bill 618 makes it unlawful to sell or furnish any barbital (diethylbarbituric acid) or veronal, except on the prescription of a physician. Senate bill 815 makes an annual appropriation of $25,000 to provide for the promotion of maternal hygiene under the state department of public health. House bill 523 provides for the establishment of a state hospital for the insane in Southern California. House bill 739 creates a department of professional and vocational standards to be headed by a director and to consist of the various boards of examiners, including the board of medical examiners. For the purpose of administration, the registration and clerical work of the department shall be organized by the director, but nothing in the act is to be construed as abolishing any of the boards or their functions except as to the clerical details. House bill 827 would allow pupils in the elementary and high schools to be excused from attendance for the purpose of receiving dental attention. House bill 876 creates the offices of the state and local registrars of vital statistics. House bill 1033 provides that whenever more than fifty persons are confined in any county or city jail at any time there shall be a duly licensed physician in attendance.

COLORADO

Bills Passed.—The house and senate have passed the following bills: house bill 13, making an appropriation for the support and maintenance of the Colorado General Hospital of the University of Colorado; house bill 14, making an appropriation for the maintenance of the Colorado Psychopathic Hospital of the University of Colorado.

Bills Introduced.—House bill 434 creates in the state board of health a division of sanitary engineering to act in an advisory capacity relative to the sanitation of domestic water supplies, ice supplies, sewage systems and garbage disposal. Senate bill 79 provides that no pupil in any public school or any minor shall be compelled to submit to medical examination, prophylaxis or treatment, when the parents object to the same. Senate bill 92 amends the law relating to the practice of pharmacy by providing that the actual name of the proprietors of drug stores be conspicuously displayed on a sign on the exterior of the premises. House bill 295 authorizes physicians to give information on birth control.

CONNECTICUT

Bills Introduced.—Senate bill 144 amends the law concerning coroners by providing that whenever a deceased person shall be unidentified, the medical examiner or the coroner shall order both hands of the body to be finger-printed and a photograph to be made of the body, such finger-prints and photograph to be filed with the registrar of the town, the state department of health, and the state department of police. Senate bill 239 provides that the state department of health may investigate any system of water or ice supply and, after hearing, may prescribe regulations deemed necessary to protect the public health. Senate bill 241 provides that an applicant for a license to practice osteopathy, before being examined, must present proof of graduation from a four-year college of osteopathy and of graduation from a high school or of equivalent education, and that the applicant shall be examined in anatomy, physiology, pathology, gynecology, obstetrics, chemistry, toxicology, hygiene, public health, dietetics and the principles and practice of osteopathy. Senate bill 244 provides that the health officer of a town contiguous to any stream or body of water which is not wholly within the limits of said town may have jurisdiction over such stream or body of water in the enforcement of regulations relating to public health. Senate bill 246 provides for the issuance of burial permits by registrars, for the appointment of subregistrars authorized to issue burial permits, and for their registration with the state department of health. Senate bill 247 provides that any person already licensed to practice naturopathy or chiropractic shall not be required to obtain the prerequisite certificate required under the public acts of 1927, chapter 296 (certificate of proficiency in the basic sciences), before taking examination to qualify as either naturopath or chiropractor, in which branch such person is not already licensed. House bill 18 provides that wherever liquors have been seized because of their unlawful distribution, in contravention of the state prohibition law, the liquor, if fit for medicinal use, may be given to hospitals. House bill 132 authorizes the attorney general to proceed directly against physicians who obtained their licenses through misrepresentation. House bill 150 appropriates $2,000,000 for the erection of an infirmary for the reception, care and treatment of persons suffering from senile dementia and those suffering from incurable and chronic conditions. House bill 182 appropriates $500,000 for the state tuberculosis commission for all sanatoriums for the purpose of increasing the capacity of all such institutions by 300 beds. House bill 183 appropriates $1,200,000 to increase the capacity of the Mansfield State Training School and Hospital to 1,500 beds. House bill 187 provides for a board of health of five members for the town of West Hartford. House bill 208 appropriates $1,750,000 for a new state hospital for the insane, to be known as the Fairfield State Hospital.

DELAWARE

Bills Introduced.—Senate bill 29 creates a psychiatric clinic at the state hospital for the insane. Senate bill 30 authorizes the establishing of a mental hygiene clinic under the direction of the trustees of the state hospital for the insane. Senate bill 31 authorizes the establishment of a psychiatric observation clinic at the state hospital for the insane. Senate bill 32 amends the law with respect to the sterilization of certain mental defectives by providing that any person who is feebleminded, epileptic or insane, whether confined to any institution supported by the state or at large, may be subject to sexual sterilization. Senate bill 33 amends the law with respect to sterilization of certain defectives by providing that all habitual or confirmed criminals who have been convicted of at least three felonies are subject to sexual sterilization. Senate bill 35 permits the state board of health to create sanitary districts without regard for township or municipal lines.

IDAHO

Bills Introduced.—Senate bill 66 would repeal the present Idaho barber law. House joint resolution 2 provides that there shall be submitted to the next general election the question whether or not section 6 of article 10 of the constitution of the state of Idaho be amended so as to authorize the legislature to provide by law for the establishment of asylums for the feebleminded and insane.

ILLINOIS

Bills Introduced.—Senate bill 99 provides that any circuit court may, on application of a coroner, compel the attendance of witnesses, the production of books and papers, and the giving of testimony at a coroner's inquest, by attachment for contempt or otherwise, in the same manner as production of evidence may be compelled before the circuit court. House bill 134 provides that the county boards of the several counties shall have power to appoint a board of health having jurisdiction within the county but outside of municipalities having or hereafter creating a municipal board of health. House bill 135 regulates the practice of sanatology. Senate bill 102 regulates and controls the distribution and use of narcotics and provides for the commitment of narcotic addicts.

Chicago

Alumni Week at Northwestern.—The alumni week clinical program of Northwestern University Medical School will be held June 13-15. The clinics, which will include operative work, lectures and demonstrations, will be held at Wesley Memorial, St. Luke's, Passavant, Cook County, and Michael Reese hospitals, and at the medical school. A general session will be held in the Murphy Memorial Building, in which prominent, out-of-town clinicians have been invited to participate. The general profession is invited to attend.

League for Prevention of Hay-Fever.—At a meeting of the advisory council of the League for the Prevention of Hay-Fever, Dr. Bernard Fantus was elected chairman and Dr. William A. Evans, Dr. Leon Unger, Dr. Siegfried Maurer, Mr. Bernard C. Roloff and Prof. William B. Day members of an executive committee, which is to include ex-officio, a representative of the city health department and of the Chicago Medical Society. The council will undertake to devise ways and means of organizing a lay society composed of sufferers from hay-fever and persons interested in them for the purpose chiefly of eradicating ragweed from the metropolitan district of Chicago in the hope of minimizing hay-fever.

Society News.—According to *Science*, the fund being raised by the American College of Surgeons for the Ochsner Memorial Foundation for Clinical Research amounted, recently, to $300,000.——Dr. Frederick B. Moorehead addressed a public meeting, February 3, at the Academy of Sciences in Lincoln Park on plastic surgery illustrated with lantern slides.——The superintendent of schools has authorized the use of space in the Kinzie School, one of the older build-

ings of the north side, for a center where a group of health department and social service workers will serve as consultants with the educational staff of the surrounding schools.——The Chicago Orthopedic Club was addressed, February 8, by Dr. James P. Simonds on fundamental principles of bone pathology. —— The Chicago Ophthalmological Society was addressed, February 18, at the Medical and Dental Arts Club, by Dr. Sanford R. Gifford, Omaha, on "Synthetic Ophthalmia," and Dr. Cyrus W. Rutherford, Iowa City, on complications in cataract extraction. —— The Chicago Pediatric Society held a symposium on empyema, February 19, the speakers being Drs. Phillip Rosenblum, Eugene T. McEnery and Ralph B. Bettman.——The New York Commission on Ventilation has granted $2,000 for a continuation of the study, under the direction of Howard J. Shaughnessy, Ph.D., of the University of Chicago, of the effects of different types and methods of ventilation on the health of pupils in selected schools in certain suburbs of Chicago.——Dr. Anton J. Carlson, professor and chairman of the department of physiology, University of Chicago, addressed the Chicago Medical Society, February 13, on "Attempts to Stimulate Physiologic Processes by Diathermy," and Dr. Isaac A. Abt on "Present View Concerning Calmette's Vaccination Against Tuberculosis with B C G."

INDIANA

Personal.—John H. Bailey, Ph.D., assistant in the department of preventive medicine, University of Chicago, has been appointed research fellow of the Louis C. Huesmann Foundation of the James Whitcomb Riley Hospital for Children, Indianapolis, created in memory of the service of Mr. Huesmann in founding the Riley Hospital.——Dr. Harry T. Summersgill, Bennington, Vt., has been appointed superintendent of the Muncie Home Hospital, Muncie. Dr. Summersgill is a former trustee of the American Hospital Association and superintendent of the University of California Hospital.

Bills Introduced. — Senate bill 159 authorizes township trustees to provide hydrophobia and scarlet fever treatment for the poor. Senate bill 162 provides that in all cases in which injury to the body is caused by the operation or the use of an roentgen-ray machine, and is the basis of an action for malpractice, the court or jury shall have the right to infer negligence from the nature or manner in which the injury occurred or was inflicted, making the rule of res ipsa loquitor applicable in malpractice actions based on injuries due to roentgen rays. House bill 20 provides that a county hospital may be established whenever 25 per cent of the residents present a petition to the board of commissioners to establish such hospital. House bill 304 amends the nurses' registration law by requiring one year of high school work previous to hospital training.

IOWA

Bills Introduced.—Senate bill 191 regulates the practice of embalming. House bill 199 authorizes the board of supervisors to contract for medical and dental services for poor persons.

Personal. — Dr. Leonard P. Ristine, Cherokee, has been appointed supervisor of athletics at the University of Iowa to succeed Dr. Walter R. Fieseler, who resigned, January 1, after eight years' service. —— Dr. Arthur Steindler, professor and head of the department of orthopedic surgery, University of Iowa College of Medicine, Iowa City, has been made an honorary member of the Société belge de chirurgie.

KANSAS

Bills Introduced.—House bill 194 creates a state plumbing board to consist of the secretary of the state board of health, the dean of the school of engineering of Kansas university, and one master plumber appointed by the governor. Such board shall supervise and inspect plumbing and adopt and enforce a minimum uniform standard of plumbing. House bill 320 creates a state board of physical therapy examination and registration and regulates the practice of physical therapy.

KENTUCKY

Statues of Ephraim McDowell and Henry Clay. — At the Capitol in Washington, D. C., March 3, the statues of Dr. Ephraim McDowell and Henry Clay will be unveiled in statuary hall and presented to the nation by the chairman of the statuary commission, Frank L. McVey, LL.D., president of the University of Kentucky. The statues are the gift of Isaac W. Bernheim, formerly of Louisville and now of Denver. The address on Dr. McDowell will be given by Mr. Ralph Gilbert of Shelbyville; other addresses will be made by Senators Sackett and Barkley and by Mr. Virgil Chapman of Lexington. The sculptor was Charles H. Niehaus (THE JOURNAL, July 9, 1927, p. 126).

MAINE

Bills Introduced.—Senate bill 90 provides that the superintendent of either of the state hospitals for mental patients shall receive into the hospital for treatment for a period not exceeding thirty days any person, provided such person is accompanied by a certificate signed by two licensed physicians showing that such person needs care because of his mental condition. House bill 137 creates a board of examination and registration in naturopathy and regulates the practice of naturopathy. Senate bill 144 amends the law relating to the board of registration in optometry by allowing members of the board of registration and examination in optometry $10 for each day actually engaged in the duties of the office. Senate bill 145 amends the law relating to optometry by providing for a fee of $50 for the issuance of a certificate of reciprocity. House bill 419 amends the law relating to the registration of nurses by providing that members of the board of nurse examiners shall have had after graduation from their respective schools of nursing at least three years' experience in nursing and at least two years in teaching nursing. House bill 748 defines pasteurized milk as milk, every portion of which has been heated rapidly to a temperature of not less than 142 F. nor more than 145 F. and held at such temperature for not less than thirty minutes, and then cooled immediately to a temperature of 50 F. or less.

MARYLAND

Bill Introduced.—Senate bill 129 allows physicians, nurses and hospitals a lien on any judgment, settlement or compromise obtained by the patient injured in a personal injury case, but not on any money recovered under the workmen's compensation laws.

Society News.—The Baltimore City Medical Society was addressed, February 15, by Dr. C. W. Victor Richards on "Improved Duodenal Tube," and by Dr. Emil Novak on "Diagnosis of Early Uterine Cancer."——The Osler Historical Club was addressed by Dr. William H. Welch, February 19, on "The Harvey Celebration and Medical Historical Congress in Europe," and by Dr. William G. MacCallum on "Dr. William S. Halstead."

Personal. — Dr. Frederick B. Dart, Baltimore, has been appointed health officer at large with the city department of health, instead of with the state department of health, as was noted in THE JOURNAL, January 26.——Dr. Joseph P. Franklin, Birmingham, Ala., has succeeded the late Dr. Champe C. McCulloch as deputy state health officer for Allegany and Garrett counties and as county health officer with headquarters in Cumberland.

MASSACHUSETTS

Bill Passed.—House bill 90, authorizing the Middlesex College of Medicine and Surgery, Inc., to hold real and personal property to an amount not exceeding $1,000,000, was passed by the senate and the house.

Society News.—The Cutter lecture on preventive medicine at Harvard University Medical School was delivered, February 13, by Charles-Edward A. Winslow, Dr.P.H., Anna M. R. Lauder professor of public health, Yale University School of Medicine, on "Fresh Air and Ventilation in Relation to Human Health and Comfort." —— Dr. Harvey Cushing addressed the Boston Orthopedic Club, February 11, on "Bony Growth and Its Relation to the Pituitary Gland," and Dr. Tracy J. Putnam on "Experimental Acromegaly in the Canine."—— Dr. Hans Zinsser spoke at Harvard University Medical School, Boston, January 10, under the auspices of the Phillips Brooks Association, on influenza.

Biology Center at Harvard.—The International Education Board has given to Harvard University $2,000,000, it is reported, toward a proposed institute of biology to be used to erect a building for which plans are being drawn. The entire project will cost about $6,000,000, and the International Education Board offers to give another $1,000,000 when the university shall have raised $3,000,000 for the endowment of biologic research. A large part of the income from the endowment will be used to add new men to the staffs of the biologic laboratories. The building will be erected on Divinity Avenue, opposite the quadrangle formed by the museum where it will be near the laboratories of chemistry and physics. It will be three stories high and the present Divinity Hall nearby may become a dormitory attached to the Institute of Biology. The

botanic department will occupy the left wing and the Bussey Institute a part of the main section together with the zoology department. In the right wing will be the department of general physiology.

MICHIGAN

Bill Introduced.—Senate bill 146 makes insanity for a period exceeding five years grounds for divorce.

MISSOURI

Bills Introduced.—House bill 401 authorizes any county with a population of not less than 200,000 and not more than 750,000 to establish a county hospital for feebleminded minors or minors afflicted with any form of insanity or mental deficiency. House bill 246 establishes a state board of embalmers and funeral directors and regulates the business of dealing with dead human bodies. House bill 267 amends the workmen's compensation act by providing that occupational diseases be included among the compensable injuries. House bill 290 authorizes the sexual sterilization of criminals convicted of murder, rape, highway robbery, chicken stealing, bombing, and theft of automobiles, epileptics, and those with an incurable venereal disease. House bill 306 requires railroad companies to maintain sanitary dressing rooms at terminal points for the use of employees in train and engine service. House bill 307 would repeal the entire chiropractic act. House bill 317 creates a state board of barber examiners and regulates the occupation of barbering.

MONTANA

Personal.—Dr. Hazel D. Bonness, director of the child welfare division of the state board of health for several years, has resigned because of ill health, and will make her home at Stillwater, Minn.

Bills Introduced.—House bill 107 authorizes the state board of health to make such rules and regulations as it deems necessary for the sanitation provisions of tourists' camp grounds. House bill 126 creates the Montana State Examining Board of Beauty Culturists and regulates the occupation of hairdressers and cosmetologists. House bill 82 creates a board of barber examiners and regulates the occupation of barbering.

NEBRASKA

Bills Introduced.—Senate bill 162 provides for the acceptance of certificates of those passing the National Board of Dental Examiners in lieu of an examination before the Nebraska State Board of Dental Examiners. Senate bill 190 regulates the importation, production, compounding, possession and distribution of narcotic drugs or their synthetic substitutes. Senate bill 197 provides for the sterilization of feebleminded and insane inmates of state institutions, and habitual criminals. House bill 435 adds insanity as a ground for divorce. House bill 485 regulates the sale of livestock remedies and provides for their registration, labeling, inspection and analysis. House bill 527 creates a state anatomic board and provides through said board for the distribution and use of certain dead human bodies for educational purposes. House bill 577 provides that any patient confined in any hospital supported by state or county funds may be treated by a practitioner of any schooling that the patient may choose.

NEW HAMPSHIRE

Bill Introduced.—House J. R. 11 authorizes the state board of charities and correction to engage free beds in such sanatoriums or other places as have been approved by the board for the treatment of indigent persons with tuberculosis.

Sunday Lectures for the Public.—The Kiwanis Club of Portland is sponsoring a series of public medical lectures on Sunday afternoons at the Baker Memorial Church in Concord by members of the faculty of Harvard University Medical School, Boston. The first lecture was by Dr. Frederick T. Lord. The next will be by Dr. James L. Huntington, February 24, on "What Is Meant by Modern Obstetric Care." Some of the other speakers will be Drs. Reginald Fitz on "A Medical Fashion Show"; William H. Robey, "Old Age"; Richard M. Smith, "Healthy Children," Edwin H. Place, "Contagious Diseases," and William J. Mixter.

NEW JERSEY

Society News.—The Atlantic County Medical Society was addressed, February 8, by Dr. Roy D. Adams, clinical professor of medicine, Georgetown University School of Medicine, Washington, D. C., on "Chronic Pulmonary Diseases."—— St. Francis Hospital, Trenton, dedicated a new $400,000 wing in December.——Dr. Frank C. Hammond, Philadelphia, addressed the Gloucester County Medical Society, January 17, on "Medical Ethics and Pastoral Medicine."

Bills Introduced.—Senate bill 74 permits a county without a county hospital to appropriate a sum not to exceed $50,000 annually to any one hospital which permanently maintains a building for the care and treatment of contagious and infectious diseases. House bill 142 provides for the signing of death certificates before the burial of a deceased person, and permits the local registrars of vital statistics to be deputized by the state registrar to enforce birth and death certificate registration laws. House bill 97 empowers the board of embalmers and funeral directors to make their own rules and regulations, but provides that no "embalment" shall ever be demanded for a dead body, except for one in which death occurred from a contagious disease, in which case the fluids taken from the body shall be buried with it. House bill 145 creates a state board of naturopaths and regulates naturopathy.

NEW MEXICO

Bill Introduced.—House bill 77 provides for the registration and examination of chiropodists, and creates a board of "masseur chiropody."

NEW YORK

Hospital News.—A cancer clinic has been established at the Buffalo City Hospital to be held Saturday mornings under the direction of Dr. Karl F. Eschelman and a staff of about fourteen physicians. The clinic will have a small supply of radium, privately owned by two physicians, at its disposal. ——The commissioner of health of Syracuse opened the new Communicable Disease Hospital in November.

Damage Suit Against Physician and Constable.—Dr. Theodore C. Reed, Amityville, Long Island, a village trustee, and Mr. John G. Abrams, constable, have been made defendants in a suit for $2,000 damages filed by an attorney who charges false arrest and imprisonment. The attorney was arrested by the constable after his machine collided with another automobile and he was taken for examination to Dr. Reed, who pronounced him intoxicated. A jury freed the attorney and he promptly instituted suit for damages for false arrest and imprisonment. Dr. Reed, according to the New York *Times*, contends that the village should protect physicians by bonding them against the expense and annoyance of such legal actions. Since it is difficult to obtain a conviction for intoxication in Suffolk County, physicians who examine alleged intoxicated persons are made liable to damage suits.

Quacks Dump Detroit Equipment in Buffalo.—The "Doctors for Men," 1039 Farmer Street, Detroit, who recently came in contact with the law, have moved their equipment to quack offices in Buffalo operated by Daniel J. Van Velsor of Pittsburgh. As a result of a raid by the Michigan state police, Van Velsor and F. C. Fontaine, managers, are out on bail, while their assistants, Howard Morris, drug dispenser, and R. E. Bennet, an alleged re-fee man, have not been apprehended. This group was driven out of Detroit through the effort of the Wayne County Medical Society and with the assistance of the authorities. The Buffalo offices of Van Velsor have been repeatedly exposed by the Erie County Medical Society cooperating with the Better Business Bureau. An inspector for the New York state department of education has been in Buffalo recently checking up on the recent developments.

Bills Introduced.—Senate bill 466 provides that a person not vaccinated shall not be admitted into a school of a city having a population of 50,000 or more. House bill 784 amends the correction law in regard to the psychiatric clinic at Sing Sing by providing for three assistant commissioners of correction, the third assistant to be a qualified psychiatrist of not less than five years' experience. House bill 810 and senate bill 565 amend the health law by providing that the local health board of a district within the boundaries of a state park shall consist of the park commissioner and the state commissioner of health ex-officio, and this board will appoint a health officer. House bill 824 authorizes the commissioners of the town of Newburgh to erect a hospital for aged and indigent persons and authorizes a bond issue to cover it. House bill 927 would exempt from the provisions of the tax law all real property from which no income is derived belonging to the medical society of any county and which property is situated within any city containing a population of 117,000.

Society News.—Dr. Thomas Archibald Malloch, librarian of the New York Academy of Medicine, addressed the Broome County Medical Society, Binghamton, February 5, on "Per-

sonal Reminiscences of Sir William Osler."——The Rensselaer County Medical Society, Troy, will be addressed, March 12, by Dr. Albert D. Kaiser, Rochester, on "Rôle of Tonsils and Adenoids in Upper Respiratory Infections in Children," and by Dr. Peter L. Harvie, Troy, on "Spinal Anesthesia"; on April 9, Dr. Benjamin S. Barringer, New York, will speak on treatment of carcinoma of the bladder and of the prostate, and Dr. Frank M. Sulzman, Troy, on "Foreign Bodies in the Upper Air Passages."——The Medical Society of the County of Albany was addressed, February 13, among others, by Dr. Arthur M. Dickinson on "Rat Bite Fever," with report of cases, and by Drs. Joseph Ivimey Dowling and Arthur F. Holding on "Case of Foreign Body in the Throat: Relative Merits of Direct and Indirect Laryngoscopy."——Dr. George M. Piersol, Philadelphia, addressed the section on medicine of the Buffalo Academy of Medicine, February 13, on hemorrhage from the gastro-intestinal tract.

NORTH CAROLINA

Bill Introduced.—Senate bill 277 provides for the license tax on the sale of drugs, medicines, alcohol and cosmetics.

Bill Passed.—Senate bill 73, providing for the asexualization of mental defective inmates of state charitable and penal institutions, was passed by the senate.

NORTH DAKOTA

Bill Passed.—Senate bill 64, providing for the supervision of plumbing by the state department of health and creating a board of plumbing examiners, was passed by the senate.

Bills Introduced.—Senate bill 126 provides that the board of county commissioners of any county may join with other counties or cities to create a health district and to maintain a district health department. Senate bill 125 provides for the examination and registration of camps by the state health department. Senate bill 130 requires that in all counties having a population of more than 5,000, coroners must be regularly practicing physicians.

OHIO

Bills Introduced.—House bill 111 provides that the effects of alcohol and narcotics on the human system be taught in the public schools. House bill 145 authorizes every board of education in this state to appoint at least one school physician and one or more school dentists, dental hygienists and assistants. House bill 169 provides for court appointed expert witnesses, including medical experts, in civil actions. House bill 170 provides for court appointed expert witnesses in criminal actions, including those actions in which the insanity of the accused is not an issue.

OKLAHOMA

Bills Introduced.—House bill 119 provides for an appropriation of $107,500 for the construction and equipment of two additional wings to the separate ward for ex-service persons of the World War at the Central Oklahoma State Hospital at Norman. House bill 55 requires parents to provide medical attendance for their children, if such attendance is not contrary to the religious beliefs of the parents.

OREGON

Bills Introduced.—House bill 364 makes permanent insanity a cause for divorce. House bill 377 provides that no physician holding an unrevoked license shall be refused the right to practice and to operate in any hospital in the state. House bill 403 requires all applicants for a marriage license to present a physician's certificate showing an absence of venereal disease. House bill 386 amends laws relating to the examination and registration of registered nurses by providing for the granting of licenses by reciprocity, the annual renewal of nurses' certificates, and the payment of an annual license fee therefor.

PENNSYLVANIA

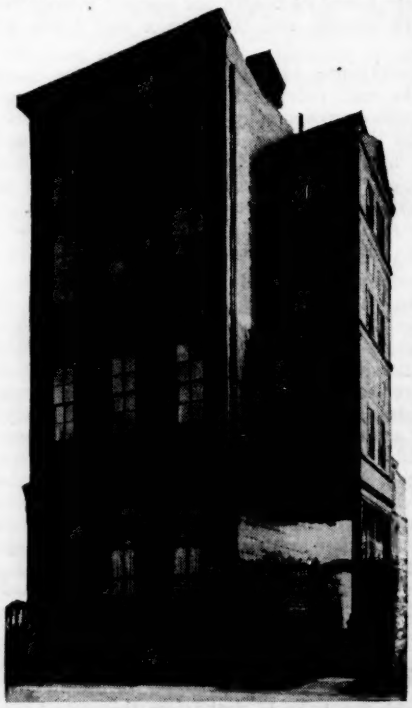
Health Officer Appointed.—Dr. Charles B. Maits has been appointed director of the department of health of Pittsburgh to succeed the late Dr. Richard G. Burns. Dr. Maits has been connected with the Pittsburgh Department of Health for about sixteen years. He is a director of the Allegheny County Medical Society and a member of the staff of St. Francis Hospital, and he served in the medical corps during the World War. The position of health officer of Pittsburgh has been vacant for several months.

Bills Introduced.—Senate bill 417 requires midwives to be licensed and registered by the state board of medical education and licensure. House bill 786 provides that any board of school directors may employ one or more school nurses and any two or more school districts may jointly employ school nurses. House bill 565 provides that in school districts of the first, second and third classes, the physical examination of a minor provided for by law shall be made by a physician employed by the board of school directors. House bill 781 amends the medical practice act by providing for the reinstatement of licenses to practice of persons whose names have been removed from the records.

Hospital News.—The construction of a 400 bed U. S. Veterans' Bureau Hospital near Coatesville has been approved by the President.——The Tuberculosis League of Pittsburgh opened a new six story hospital building, January 8, which cost about $450,000 and provides means for treatment with both sunlight and artificial light; there is porch space for every patient, and an auditorium which may be used for lectures for medical students of the University of Pittsburgh. The league now has five buildings and is well prepared to care for all kinds of tuberculosis.——Dr. Jerome B. Rogers has resigned as superintendent of the Pottsville Hospital, Pottsville; he will remain as the chief surgeon. The superintendent hereafter is to be a layman who gives full time to that work and resides at the institution.

Philadelphia

Another Skin and Cancer Hospital Opened.—About 500 persons attended the dedication of the Skin and Cancer Hospital of Philadelphia, 806 Pine Street, December 18. Congressman Welsh presided; the speakers were Dr. Albert Strickler, who will be medical director of the hospital; Dr. Frank C. Hammond, dean and professor of gynecology, Temple University School of Medicine; Laura H. Carnell of Temple University; Dr. Wilmer Krusen, president of the Philadelphia College of Pharmacy and Science, and Mr. Edgar B. Moore, president of the board of managers. About a year of preliminary work was done before the hospital opened. It is the first of its kind in Philadelphia, and is said to be one of five in the country. The objects of the organization are to stimulate research and furnish the poor with scientific treatment for skin ailments. The equipment includes roentgen-ray apparatus, quartz lamps and electrodesiccation outfits and laboratories; physicians prominent in their field will be in charge of the departments. The hospital will be open always to visiting members of the profession and to patients who are deemed worthy of consultation. Clinics will be held daily except Sunday and holidays. The departments include dermatology, pathology, roentgenology, malignant tumors, pediatrics, otolaryngology and dentistry.



RHODE ISLAND

Bills Introduced.—Senate bill 35 provides that in the trial of any civil cause, a physician shall not be required to give any testimony which tends to disclose any communication made to him by any patient consulting said physician. House bill 553 would exempt optometrists from jury service.

Society News.—At the recent quarterly meeting of the Rhode Island Medical Society, Drs. Harvey B. Sanborn discussed "Neurologic Contacts with Other Fields of Medicine"; Charles A. McDonald, Providence, "Personality Make-Up of the Individual in Sickness," and Neil A. Dayton, Boston, "Newer Aspects of the Problem of Mental Deficiency."——

The Providence Medical Association held a symposium on peptic ulcer, recently; the speakers were Drs. Louis M. Gompertz, New Haven, Conn., and Theodore S. Moise, Jr., New Haven.

TENNESSEE

Bill Introduced.—Senate bill 294 gives the claims of physicians and surgeons priority in the distribution of the decedent's funds, subject only to funeral expenses.

Professor Visscher Goes to California.—Maurice B. Visscher, Ph.D., for three years professor of physiology at the University of Tennessee College of Medicine, Memphis, has been appointed professor of physiology and pharmacology in the medical school of the University of Southern California, and will take up that work this summer. Professor Visscher received his Ph.D. degree from the University of Minnesota; he spent a year also in the laboratory of Professor Starling in London and another with Professor Carlson at the University of Chicago.

TEXAS

Bill Introduced.—House bill 527 places an annual occupation tax of $50 on itinerant physicians and traveling venders of "patent medicines."

Bill Passed.—Senate bill 127, amending the medical practice act by requiring registration of physicians in each county in which they practice, and by requiring applicants to practice obstetrics to be examined in obstetrics only by a board of medical examiners, was passed by the senate.

Society News.—Members of the Eastland County Medical Society were guests at a turkey dinner, recently, given by the physicians of Cisco.——Dr. and Mrs. Charles W. Butler, Jr., gave a banquet, recently, at the Cedars Hospital for members of the Houston County Medical Society following the scientific session of their meeting at Crockett.——Members of the Nueces County Medical Society were guests at a dinner given by the superintendent of the Fred Roberts Memorial Hospital at Corpus Christi, recently, in celebration of the opening of the hospital. All members of the county medical society became members of the hospital staff.——The Lamar County Medical Society was addressed, recently, by Dr. James M. Hooks, Paris, on "Management of Fractures."——The Travis County Medical Society was addressed, recently, by Dr. Harold L. D. Kirkham, Houston, on "Scope and Limitation of Plastic Surgery," illustrated with lantern slides.

UTAH

Bill Introduced.—Senate bill 93 amends the laws relating to training schools for nurses by requiring that an accredited training school be operated in connection with a hospital with a minimum capacity of fifty beds and that it actually instruct its students in a reasonable course in medicine, surgery, obstetrics and pediatrics.

Robber Takes Doctor's Clothes.—A Salt Lake City physician writes that a robber entered his office, February 5, and with the aid of a pistol took his cash, jewelry, and the clothes he had on. The thug was skilled in robbery. He was about 40 years of age, with a pasty complexion, a full, smooth face, of medium height and well built. His chief characteristic was a disreputable appearance.

VERMONT

Bill Introduced.—House bill 38 provides that the state board of medical registration shall consist of seven physicians in active practice; four regulars, two homeopaths, one eclectic, and a member of the Vermont Pedic Association, Inc.

VIRGINIA

Bank Directors.—The *Virginia Medical Monthly* prints the following list of physicians from various sections of Virginia who, it is said, are or have been bank directors:

Dr. Jesse M. Shackelford, Martinsville
Dr. Benjamin L. Carter, Blue Spring Run
Dr. B. Ryland Hudnall, Covington
Dr. John M. Williams, Petersburg
Dr. Charles S. Dodd, Petersburg
Dr. Moses P. Rucker, Bedford
Dr. Samuel B. Moore, Alexandria
Dr. Ollie A. Ryder, Alexandria
Dr. William O. Smith, Altavista
Dr. Robert E. Booker, Lottsburg
Dr. Ramon D. Garcin, Richmond
Dr. William W. Wilkinson, La Crosse
Dr. Arthur T. Hart, South Hill
Dr. Augustine W. Lewis, Aylett
Dr. William E. Croxton, West Point
Dr. U. H. Johnson, Barhamsville

University News.—The Medical College of Virginia, Richmond, was closed, January 4, in honor of the late Dr. Achille Murat Willis, professor of surgery. Founder's Day at the college was observed, February 15, when Dr. Joseph L. Miller, Thomas, W. Va., gave an address on "Physicians of the Old South: Their Character and Education," and Dr. Charles R. Robins on "Beginnings in Nursing Education Under Sadie Heath Cabaniss in the Old Dominion Hospital."——The Chemical Foundation, New York, has made a grant to the Medical College of Virginia, Richmond, which will make it possible to employ for three years a full-time expert to enlarge its program of research in chemistry as related to medicine and dentistry.

WASHINGTON

Bills Introduced.—Senate bill 143 provides that no person shall be committed to a state hospital for the insane without being given a preliminary examination and an observation for thirty days in a county hospital or a detention hospital designated by the court in the insanity proceedings. Senate bill 165 provides that whenever an act is permitted or required to be performed by a physician under the laws of the state, the word "physician" shall include any person holding a certificate to practice osteopathy and surgery. Senate bill 164 would amend the law relating to osteopathy by including within the definition of unprofessional conduct all advertising of medical business which is intended or has a tendency to deceive the public or impose on credulous or ignorant persons and so to be harmful or injurious to public morals or safety.

WEST VIRGINIA

Bills Introduced.—Senate bill 68 provides that a hospital owned and operated by any railroad company or public utility for the medical and surgical treatment of the employees of such corporation, and supported by means of deduction from the wages of said employees, shall receive no one for treatment at a less rate or charge than is made for employees or their families for like service, but this does not prevent charity work. House bill 93 would exempt Christian science from the provisions of the medical practice act or of the law relating to the treatment of human ailments without the use of any drug or material remedy.

Society News.—The Mercer County Medical Society held a symposium on influenza at Bluefield, January 30, the speakers being Drs. William C. Slusher, Joseph G. Bishop and Bernard S. Clements, Matoaka; John H. Bird, Rock; Frederick F. Holroyd, Princeton, and Percy R. Fox, McComas.——The Harrison Medical Society was addressed, January 3, by Dr. Arthur S. Jones, Huntington, on "Tuberculosis of Joints and Bones," illustrated with lantern slides.——The Kanawha County Medical Society was addressed, January 15, by Drs. Rome H. Walker on "The Benefit of a Local Medical Society," and by Thomas W. Nale, Jr., Charleston, on "Pregnancy Complicated with Burns."——The Fayette County Medical Society was addressed, January 8, by Dr. Homer A. Walkup, Mount Hope, on "Prevention of Heart Disease."——Dr. Albert Graeme Mitchell, Cincinnati, addressed the Ohio County Medical Society, January 18, Wheeling, on "Pediatric Indications for Tonsillectomy."——The Cabell County Medical Society was addressed, recently, by Dr. Albert H. Hoge, Bluefield, on "Hypothyroidism."——The Barbour-Randolph-Tucker County Medical Society was addressed, January 22, by Dr. Harry M. Hall, Wheeling, on "The Place of the County Society."——A clinic has been opened in Bluefield for the treatment of underprivileged children; it is the first free baby clinic in that community.——Dr. William Cullen Bryant, Pittsburgh, addressed the Ohio County Medical Society, Wheeling, February 15, on "Sacral Anesthesia in Urology."

WISCONSIN

Society News.—The Kenosha County Medical Society, Kenosha, was addressed, February 4, by Dr. Samuel J. Hoffman, Chicago, on prevention and treatment of rabies, illustrated with motion pictures.——The University of Wisconsin Medical Society held a symposium on radiology, February 15; the university recently expanded its department of radiology and acquired new apparatus and a radon plant. .

Personal.—Before retiring from office, Governor Zimmerman made the following appointments to the state board of medical examiners: Dr. John E. Guy, Milwaukee, to succeed Dr. Edith H. Stevens, Madison; Drs. Royal C. Rodecker, Holcombe, and J. Gurney Taylor, Milwaukee, to succeed themselves.——Dr. Charles S. Sheldon, Madison, recently celebrated his eighty-seventh birthday. Dr. Sheldon has practiced in Madison about forty-five years.——Dr. Oscar C. Heyer has been appointed health commissioner of South Milwaukee to serve the unexpired term of Dr. Robert D. Moray who, according to the *Wisconsin Medical Journal*, was convicted of manslaughter as the result of an illegal operation.——Dr. Otis W. Saunders resigned, February 1, as health officer of Green Bay.

Bills Introduced.—House bill 173 provides that no body may be cremated within forty-eight hours after its decease, unless death was caused by a contagious or infectious disease. House bill 156 amends the law relating to inquests of the dead by providing that no justice of the peace shall perform the duties of the coroner except in the absence of the coroner, or in the event of the coroner's inability to act, or in the event that there is no deputy coroner appointed by the coroner to perform the functions and duties of the coroner. House bill 140 provides that cities may maintain and operate hospitals and may acquire both real and personal property for that purpose. House bill 155 authorizes the state board of health to prescribe standards governing the general sanitation of tourist camps, summer camps and summer resorts, with respect to water supply, toilet facilities, disposal of sewage, garbage and rubbish, and the general safety of the surroundings.

WYOMING

Bills Introduced.—Senate bill 16 makes it unlawful to possess or distribute by any means whatever *Lophophora williamsii* (peyote) and *Agave americana* (maguey). House bill 218 provides that all licenses to practice medicine, surgery or osteopathy issued by the state board of medical examiners must be renewed annually on the payment of a fee of $1.

GENERAL

Extension of Sheppard-Towner Act Proposed.—A bill has been introduced in the House of Representatives (H. R. 17183) and is already recommended for passage by the House Committee on Inter-State and Foreign Commerce, proposing the extension of the Sheppard-Towner Act for five years after the expiration on June 30, 1929, of the term to which it is now limited. The bill seems to be intended as a substitute for the Newton bill (H. R. 14070).

The Government Wants a Toxicologist.—Applications for senior toxicologist must be on file with the U. S. Civil Service Commission, Washington, D. C., by March 13 to fill a vacancy in the bureau of chemistry and soils of the department of agriculture, and vacancies occurring in other government departments. Competitors will not be required to report for examination, but will be rated on their training, education and experience. The entrance salaries range from $4,600 to $5,200 a year.

Conference of Tropical Medicine.—About 2,000 delegates representing forty-four nations attended the First International Conference on Tropical Medicine and Hygiene at Cairo, Egypt, in December. The United States was represented by Col. Bailey K. Ashford, U. S. Army, retired, now professor of tropical medicine and mycology, University of Porto Rico, Senior Surg. Taliaferro Clark, U. S. Public Health Service, and Lieut. Col. Gilbert FitzPatrick, medical reserve corps, Chicago, each of whom attended the conference at his own expense, as Congressional authorization and appropriations were lacking. The congress was a success. Among others, the chief health problems of Egypt, including hookworm, bilharzia, malaria and trachoma, were presented.

Estimate of Motor Toll in 1928.—The National Safety Council, whose headquarters are at 108 East Ohio Street, Chicago, estimates that there were 27,000 deaths due to motor vehicle accidents in the United States in 1928. This is an increase of about 5 per cent over the previous year. More than 2,700 people are said to have been killed during December. The city of Washington, D. C., completed December without a single fatality. This, the council says, in a city of more than 500,000, is rare and is a challenge to other large cities. During December, three persons were killed in the home for every four persons killed on the streets, the total number of fatal home accidents reaching 2,000, and asphyxiation being the most frequent cause. These figures are a preliminary estimate based on reports from sixteen states and are subject to revision.

Rural Hospitals.—The program of the Commonwealth Fund, New York, of assisting selected rural communities in constructing hospitals includes, at present, four hospitals. The Glasgow, Ky., and the Farmington, Maine, hospitals will be ready for use late in the spring. The cornerstone of the Beloit, Kan., hospital was laid, January 10. Construction of the Wauseon, Ohio, hospital was started in November. Some of the completed projects have become centers for meetings of health workers, notably the hospitals at Murfreesboro, Tenn., and Farmville, Va. At the latter place, Dr. Joseph C. Bloodgood, Baltimore, recently addressed a public meeting on cancer, and Dr. Stewart R. Roberts, Atlanta, Ga., on "The Rheumatic Family." The Murfreesboro meeting in December was addressed by Drs. Barney Brooks, Nashville, Willis C. Campbell, Memphis, and Kirby S. Howlett, Franklin, president of the Tennessee State Medical Association, and by Dr. Waller S. Leathers, dean, Vanderbilt University School of Medicine, Nashville. The value of these rural hospitals is not alone in providing care for the sick; they also serve as postgraduate centers for the rural physicians.

Meeting of American College of Physicians.—The thirteenth annual clinical session of the American College of Physicians will be at Boston, April 8-12, under the presidency of Dr. Charles F. Martin, Montreal, and with headquarters at the Hotel Statler. Those who may register include all present members of the college and applicants, members of the Suffolk District Medical Society, medical students in local colleges, and qualified practitioners who pay the nominal $5 registration fee. The general meetings will be open to distinguished foreign visitors, physicians engaged in teaching or research, members of the U. S. Public Health Service and retired practitioners. The convocation exercises for conferring fellowships Friday evening are open to physicians generally. George Vincent, Ph.D., president, Rockefeller Foundation, will speak at the banquet, Thursday evening; all Boston physicians and their wives are invited (tickets, $5). Other special features include a symposium on deficiencies, Monday evening, the speakers being Drs. George R. Minot and Simeon Burt Wolbach, Boston; Randolph West, New York, and George R. Cowgill, Ph.D., New Haven. The late Dr. Joseph Goldberger was to have spoken on pellagra. Wednesday evening, Benjamin White, Ph.D., Boston, will discuss "Serums and Vaccines in the Prevention and Treatment of Disease." In addition to other addresses, a large program of clinics will be held at the Boston City Hospital, Beth Israel Hospital, Thorndike Memorial Hospital, Homeopathic Hospital, Children's Hospital, Massachusetts General Hospital, New England Baptist Hospital, New England Deaconess Hospital, Peter Bent Brigham Hospital, Robert Breck Brigham Hospital and U. S. Naval Hospital.

Medical Bills in Congress.—S. 3936, regulating the practice of the healing art in the District of Columbia, has passed the House. This bill passed the Senate, May 28, 1928. The House added a board of examiners in naturopathy to the bill and exempted "clystertory treatment" from its provisions. H. R. 13752, providing for the construction of a children's tuberculosis sanatorium for the District of Columbia, has passed the House and has been favorably reported to the Senate. H. R. 13251, providing for the vocational rehabilitation of disabled residents of the District of Columbia, has passed the Senate. This bill passed the House, May 25, 1928. H. R. 15523, authorizing representatives of the several states to make certain inspections and to investigate state sanitary and health regulations and school attendance on Indian reservations, Indian tribal lands, and Indian allotments, has passed both House and Senate. H. R. 15732, making an additional grant of land for miners' hospitals in Arizona and Utah, has passed both House and Senate. H. R. 16411, providing a pension of $125 a month for the widow of Dr. Joseph Goldberger, has passed the House. H. R. 14153, authorizing an appropriation for the construction of a hospital annex at the Marion Branch, National Home for Disabled Volunteer Soldiers, has been favorably reported to the Senate. The bill passed the House, Jan. 7, 1929. H. R. 16986, introduced by Representative Collins, Mississippi, provides for the establishment of a branch home of the National Home for Disabled Volunteer Soldiers in the state of Mississippi. H. R. 17032, introduced by Representative Hughes, West Virginia, authorizes the erection of a veterans' bureau hospital in the state of West Virginia. H. R. 17058, introduced by Representative Wainwright, New York, proposes to increase the efficiency of the medical department of the regular army. The bill increases the number of medical, dental and veterinary personnel, both officers and enlisted men. S. 5783, introduced by Senator Shipstead, Minnesota, amends paragraph 10, section 202, second sentence, of the World War Veterans' Act so as to read (the matter in italics being new): "The director is further authorized, so far as he shall find that existing government facilities permit, to furnish hospitalization and necessary traveling expenses incident to hospitalization to veterans of any war, military occupation, or military expedition, including those women who served as army nurses under contracts between April 21, 1898, and February 2, 1901, not dishonorably discharged *prior to the termination of actual hostilities during such war or prior to the termination of such military occupation or military expedition,* without regard to the nature or origin of their disabilities." Hearings have been held on H. R. 16874, authorizing the commissioner of prohibition to pay such sums as he may deem appropriate for information concerning violations of narcotic laws and on H. R. 16875, authorizing the appointment of narcotic inspectors or agents of the bureau of prohibition to duty in any foreign country.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 26, 1929.

The Gold Coast Rendered Sanitary

A report to the *Times* by W. D. Innes, director of medical services, Gold Coast, shows the enormous improvement effected by modern sanitation in a region that at one time was regarded as "the white man's grave." The conditions of life in the days when West Africa earned its evil reputation were such that, in the light of our present knowledge, the wonder is not so much that the mortality was high but that there were any survivors at all. Europeans lived in ill designed houses and in close contact with an African population heavily infected with disease. There was no drainage or proper water supply; water was stored in open tanks and barrels, and mosquitoes bred in myriads. The food was atrocious. In the coast towns, where the majority resided, there were no cattle or sheep, and so—there being no cold storage—the European had to rely for his fresh food almost entirely on fish, when he could get it, on the minute and stringy local fowl, or on canned food. Not only was the food bad but its preparation was worse. There were few or no European women in the country, and the lone male who had the knowledge or patience to teach the elements of cookery or, having them, could spare the time, was of necessity rare. There was little or nothing in the way of recreation. The conditions today are vastly different. Houses of excellent design are built in concrete. In the large towns there is an area set apart for European houses. Sanitation has made vast strides since the creation of a special sanitary branch of the medical department in 1910. Owing to the opening up of the country by railways and roads, there is now almost everywhere an ample local fresh meat supply. Ice and cold storage plants are in operation in Accra and Sekondi, which insures a variety of fresh food not only to those two towns but to all stations on the railway system and to the coast towns. As conditions improved, more wives came out with their husbands, and each arrival gave an impetus to efforts directed toward bettering conditions. In 1908 there were in Accra eighteen European women, including nursing sisters and missionaries. Today there are during the "season" more than 120. In 1897 the invaliding rate per thousand for officials was 137.50; for nonofficials, 129.83. The death rate per thousand was 37.5 for officials and 99.92 for nonofficials. For the year ended April 30, 1928, the invaliding rates were 32.44 and 20.21, respectively, and the death rates, 4.99 and 8.84. There are fully equipped European hospitals. The African has shared with the European in the advance of sanitation, in improved water supplies, in drainage, and in improved conservancy and refuse disposal, and much has been done especially for him in both the preventive and the curative spheres of medicine. Thirty years ago the total strength of the medical staff on the Gold Coast was fourteen. There were no nursing sisters. The work was done under most trying circumstances. The native hospitals were in the majority of cases mere shacks, and the equipment was very scanty. Today there is an establishment of eighty-nine medical officers of the West African medical staff (European), together with seven women medical officers (European) working in maternity hospitals and infant welfare clinics, and, in addition to these, four African medical officers. There are twenty-six European nursing sisters, the majority of whom work entirely in hospitals for Africans. There are forty-one African hospitals and thirty-eight dispensaries, with a total of more than a thousand beds and cots. Trypanosomiasis, rife in a large tract of West Africa, is being tackled by a special band of scientists and workers. Tsetse-fly areas are being cleared, indigenous populations removed from heavily infested districts, and the newer remedies for this disease employed with satisfactory success. Beriberi, owing to the new knowledge of deficiency diseases, has almost vanished from the coast. Yaws has been found very amenable to the newer arsenical and bismuth preparations, and in many parts of the country has become rare. Education in antimosquito work, in better hygienic methods of living, in sewage disposal, and in the procuring of pure drinking water is diminishing the incidence of malaria, dysentery, and the various worm infestations in the districts where as yet it is impossible to inaugurate sanitary measures to any extent.

The School Child's Health

The report for 1927 on the health of the school child, just issued, shows that during 1927 the number of children in the three age groups medically inspected was 1,823,775, in addition to 861,964 "ailing" children outside the prescribed age groups. The number of children examined as a routine found to be suffering from physical impairment or some particular defect or disease was 374,855, or 20.6 per cent. The principal morbid conditions of school life in 1927 (including all "special" and routine children found to have defects) were: eye defects, 252,091; enlarged tonsils and adenoids, 162,533; defects of ear and hearing, 47,476; malnutrition, 24,049; deformities, 22,771; tuberculosis, 12,901; heart disease, 5,509. In addition, there were 818,413 cases of minor ailments. At all school ages about 18.22 per cent of the children required medical treatment for conditions that did not include dental disease, uncleanliness and mental disorders. The number of children under 15 years who died during the year in England and Wales was 82,968, and the principal causes of death were disease of the respiratory system, 26 per cent; prematurity and congenital conditions, 24 per cent; certain infectious diseases, 15 per cent; diarrhea and digestive disease, 9 per cent; tuberculosis, 6 per cent; all other causes, 20 per cent. The deaths of children under 15 years of age are counted as a failure of the service. Yet it is not complete failure, for the number of deaths is 30,000 less than six years ago. The physique of the child leaving school is better, his health is better, and he loses less time from his work because of sickness. His body is a cleaner body; certain of his maladies, such as malnutrition, tuberculosis and glandular disease, have been reduced; defective vision has been corrected; hearing is improved and the teeth are in better condition, and there is less liability to disease. In short, he is a keener individual.

Tetra-Ethyl Lead in Gasoline: Official Report Criticized

The departmental committee which is investigating the use of tetra-ethyl lead in gasoline has resumed its sittings. The committee was appointed by the minister of health, April 2, and, after holding four public sessions, it issued an interim report in which it was stated that there were no reasons for prohibiting the use of ethyl gasoline so long as certain precautionary measures were maintained (THE JOURNAL, Sept. 1, 1928, p. 655). This report aroused some criticism (THE JOURNAL, Nov. 3, 1928, p. 1387). Dr. H. E. Armstrong, emeritus professor at the City and Guilds College, South Kensington, has now given evidence which is further criticism. He said that, as a chemist, he had paid special attention to poisoning by lead, chiefly in paints. He had acted in defense of the use of lead in paints, having proved that lead was not volatilized from paint during drying, and that the observed objectionable effect arose from the solvent (turpentine) present in the paint, and from vapors given off during drying, owing to oxidation of the oil. He had also studied the action on living plant tissues of neutral liquids generally, slightly soluble in water, a class to which lead tetraethide belonged, and had called special attention to the danger attending the use of such liquids as solvents. In view of the

policy that had long prevailed in this country, especially the discountenancing of lead, a highly poisonous substance such as lead tetra-ethide should never have been admitted into general use. He objected to the use of the terms "ethyl gasoline" and "ethyl petrol" as misnomers. Tetra-ethide was not the only means of improving the quality of low-grade gasoline, and there was no especial need for its introduction. The proportion put into ordinary gasoline might be small, but large proportions were reported to have been used in motor racing. The tendency of the motor industry was to work at higher pressure ratios, and it was to this possible large future use of the tetra-ethide that he took special exception. He believed the evidence obtained by the American experiments to be of little value, because the attention there had been almost entirely directed to the discovery of evidence of lead poisoning. The action of the tetra-ethide, whose primary poisonous effect should be that of a neutral liquid, not that of a compound acting through the lead it contained, was in no way comparable with that of a lead salt. The question was whether the well known but often disregarded danger arising from exhaust gases should be increased in gravity by the addition of lead to the fumes. Why, when we were seeking to purify our atmosphere, should we add to the air a poisonous dust to serve private ends? The Americans stated that none of the individuals examined showed injury to health resulting in any way from ethyl gasoline. But what symptoms of injury were looked for? If there was no injury to health it meant that the exposure to the fumes was so slight as to be of no account, for gasoline vapor was inimical to health when constantly inhaled. A vast amount of trouble seemed to have been taken to carry out experiments proving nothing.

Serum by Airplane in Canada

Along the banks of Peace River in Alberta, there are trading posts where a few trappers and traders and Indians live in isolation, with no means of communication with the rest of the world except dog teams. At one of these posts on the Red River, nearly 500 miles north of Edmonton, a trader of the Hudson's Bay Company fell ill with virulent diphtheria. The only physician available came by dog sleigh from Port Vermilion, 50 miles away, but not in time to save the patient or to prevent the rest of the colony from infection. The physician's supply of antitoxin was small, and not very fresh. He needed a sufficient amount to treat a possible 200 or more patients. He sent word of his need by the swiftest dog team at the post to Peace River town, 200 miles distant. It took ten days of hard travel for the dog-musher, himself stricken with influenza, to get to the town at the end of the railway line from Edmonton. A few hours later two airmen in a small open plane soared north in the biting cold against a fierce head wind, carrying a supply of fresh serum from Edmonton. Twice the airmen, too numbed with cold to proceed farther, were forced to land. Eventually they reached Peace River town, so frozen and exhausted that they could not climb out of the cockpit.

PARIS

(From Our Regular Correspondent)

Jan. 2, 1929.

Lesions Caused by Barbituric Acid

Following the investigation of a case of suicide due to the ingestion of diallylbarbituric acid, Trémolières, Tardieu and Carteaud demonstrated, at autopsy, serious lesions of the liver that the acid had caused. The liver was fatty and showed diffuse microscopic changes. The cells presented an abnormal clearness, with nuclear fragmentation, and invasion of the protoplasm by transparent granulations. These lesions resembled those that are found after death from infection and intoxication. Here they were the result of intoxication, as the authors were able to produce them in animals. The suicide died after twenty hours of coma and anuria. The authors insist that barbituric acid preparations are dangerous not only when taken in big doses but as well in small doses that are frequently repeated. They maintain that it will eventually produce a definite hepatic insufficiency. Thus the decision of the Académie to class all derivatives of malonyl urea among poisons that may be obtained on medical prescription only is quite justified. Unfortunately this rule is not applied with enough energy. Very few druggists refuse to sell a few capsules of veronal (barbital) to a passer-by, who may easily procure a great amount of it by going from one pharmacy to another.

Immunity in Typhoid and Paratyphoid

The epidemic in the suburbs of Lyons, which has ended, was discussed at the Académie de médecine. This disease should have disappeared in France long ago if all the measures of hygiene had been applied with the necessary strictness, especially preventive vaccination. The latter proved its efficiency during the last war: typhoid, which in 1914 and 1915 had caused more than 100,000 cases with a great number of deaths, had completely disappeared in the army dating from 1917. The effect of these *en masse* vaccinations applied on four million mobilized men, not including the civil personnel of the hospitals, nurses and male attendants of the infirmaries, had been noticeable during the ten years following the war, the disease having decreased remarkably. It was hardly seen other than in women, old men and young people who had not been vaccinated during the war. In spite of positive experiences, notices posted at city halls, and advice given at vaccination centers, in hospitals and in other locations, vaccination (which is compulsory in the army only) was neglected by the public largely because of the temporary inconvenience that it causes. Typhoid, therefore, is increasing in France and gradually approaching its prewar rate. The epidemic at Lyons has aroused attention and spread of the disease has been checked only by vaccination. Professor Achard, secretary general of the Académie de médecine, reported his experiences of the past ten years in the Beaujon Hospital, where many typhoid and paratyphoid patients are taken care of. More than 30 per cent of the cases are paratyphoid, but their frequency varies according to the season. The good results of vaccination in the army are proved by the fact that the disease is more frequent in women than in men and that among men it is mostly in the younger ones who have not served in the army. Among 164 patients seen by Achard, twelve had been vaccinated. Immunity acquired by vaccination should therefore not be considered definitive in all cases; but it seems to be of a certain duration as the disease occurred, after vaccination, within two years once, within four years four times, within seven years once, within six years once, within eleven years twice and within fourteen years once. Subcutaneous vaccination seems to be more effective than immunization by the oral route although the latter had some good results in minor epidemics in villages. Vaillard, Chauffard, Vincent, Renaut and Marchoux took part in the discussion that followed and maintained Achard's opinion. As proof of the effects of the war vaccinations they reported that in Lyons only one fifth of the cases were in men. There is still another cause of contamination persisting in spite of the careful purification of drinking water: oysters and shellfish, especially in the Mediterranean region. Oysters and shellfish that are sent to the restaurants of Paris and other cities are examined and handled with great care, but this is not the case with those that are caught and consumed by the inhabitants along the coast and in the harbors where the water is contaminated by sewage. Boinet and Teyssonnières of Toulon said that typhoid and intestinal infections persisted as endemic diseases along the Mediterranean coast, particularly in the region of Marseilles. In Marseilles alone, with its 654,000 inhabitants, there are 2,000 cases a year. In this area bacteriologic investigations

made at a distance of two miles from the coast showed 1,000 colon bacilli in one cubic meter of sea water. For political reasons, the law of July 31, 1923, which was drafted for the regulation of fishing and the breeding and sale of shellfish, is not properly enforced in the provincial communities. Boinet and Teyssonnières have called on the Académie to ask for rigid enforcement of this law, and for the extension of it to apply to traffic in all kinds of fish that may be implicated in the spread of typhoid.

Antidiphtheric Vaccination

Gustave Pinot presented at the Conseil général du département de la Seine in Paris a resolution in favor of antidiphtheric vaccination. He showed the increase of diphtheria in the region of Paris and the greater gravity of the disease in the past two years. On the other hand, the discovery of anatoxin by Ramon has made vaccination inoffensive and devoid of the inconveniences of former times. He advocated compulsory vaccination at the beginning of the second year, which seems to be the most favorable time. There was some opposition by Mounié, who believes that vaccination is inefficient at a certain age, and by Roeland, veterinary surgeon, who thinks that the technic is not yet sufficiently established. Nevertheless, the resolution was almost unanimously adopted and passed on to the department of hygiene.

Return of Manifestations of Virility in Capons

According to the Société de biologie, Busquet reports that small doses of blood serum of the bull mixed with the food of capons produced in them certain sexual manifestations which had disappeared after castration. The voice had the sound of a male; then appeared combativity and the attraction of the female. The crest was rarely modified. There is evidently an incomplete but noticable remasculinization. These incomplete effects seem to result from the alterations of the hormones of the serum caused by digestive action.

Budget of the Hospitals of Paris

The budget of the Assistance publique in Paris, for 1929, has been voted to the amount of 520,287,964 francs. It comprises a grant of 228 millions by the city of Paris. The rest is to be obtained from payment for hospital service and by special taxes on entertainments and amusements. The municipal council decided that, beginning with Jan. 1, 1929, the hospital charges should be increased from 31.88 francs to 35.82 francs a day for medical service, and from 33.60 francs to 37.66 francs for surgical or obstetric service. Hospitalization in nurseries is raised from 12 to 13 francs daily, while charges in the hospitals of the Assistance publique in cases of work accidents are raised from 35.82 to 46.56 francs for medical service and from 37.66 to 48.95 francs for surgical service. The number of hospital beds is 36,459, of which 24,000 are in Paris. Thus for the 2,872,000 inhabitants of Paris there are 8.3 beds per thousand of population. If the suburbs are added, the total population of Paris comprises 4,628,000 inhabitants and the proportion of beds is 5.22 per thousand. Two military hospitals in the suburbs (Begin in St. Mandé and Percy in Clamart) which are less crowded on account of the reduction of the army have been transferred by the department of war to the city of Paris for use as civil hospitals. The Conseil général du département de la Seine, which includes the majority of the suburbs of Paris, has voted 50,000 francs for the organization of a technical service of hygiene for the provinces, whose special duty will be to study the establishment of new sanatoriums and hospitals. The Conseil has also voted for immediate use 5,261,667 francs for the establishment of 216 beds for tuberculous patients in the various hospitals in the provinces; 8,086,130 francs for the establishment of 1,180 beds for sick people; 1,510,000 francs for beds for old people and cripples; 880,000 francs for the organization of the chateau of Beauregard in Villeneuve-St. Georges, as a hospital center for old people, cripples and incurables, and 8,900 francs for the establishment of first aid stations.

The Medical Profession and the Law on Social Insurance

The law on social (state) insurance is opposed by numerous physicians and pharmacists. Loucheur, minister of hygiene, however, declared in a recent speech at Cahors that "the government had resolved to apply the law at any price, that no opposition of the medical profession would be considered, and that it refused to hear any criticism against the faults of the law." The law applies to all businesses, the employees automatically coming under the provisions of state insurance. The hope to see a reasonable application of this unpleasant law has vanished. It was said that the regulation of public administration would improve the imperfections of a law constructed in haste. The truth is that this law was promised to the electors on the eve of the elections and that it has been carried out as a political measure, and will be so applied. The law provides for the state to pay a part of all insurance indemnities, and taxes have been raised in order to provide for them. The medical profession protests because the patient, who does not now belong to any private organization of medical and pharmaceutic aid, has to pay for his visits and drugs in proportion to the increase in the cost of living. The patient therefore restricts his visits and his medicaments as he thinks necessary. With the new system of state insurance, medical fees will be lower but the number of visits and the prescription of drugs may be increased by any unscrupulous physician who desires to abuse the privileges afforded by the law. Among the 25,000 physicians established in France, 22,000 have declared their refusal to collaborate in the application of the law. Dr. Vanverta, professor at the University of Lille, says that this innovation of the law is the system of the "tiers-payant" (third person to pay). Under its provisions the insured receives medical treatment and pharmaceutic preparations gratuitously. The insurance department receives the fees of its patrons and pays the bills of the physicians, surgeons, dentists, midwives and pharmacists. The new fees established between the insurance department and professional syndicates will be lower than the fees of the syndicates. This means low rate medicine, and physicians of good standing are opposed to it. The patient, deprived of his family physician, will have to trust himself to a stranger, who may make up for the reduced fees by increasing the number of visits and by writing an unnecessary number of prescriptions. The physicians advocate transactional systems or the maintenance of direct relationship between the patient and his physician, the insurance company participating only in the expenses. This method has been tried by private organizations and has been found to be fairly satisfactory.

Serotherapy in Infection with Brucella Melitensis

An interesting report of recovery in a serious case of undulant fever has been presented by Liège and Castarian. The patient had the disease after drinking goat's milk from an ambulant herd in the immediate surroundings of Paris. Clinical diagnosis was positive; so was the intradermal reaction of Bernet for *Brucella melitensis*. Treatment with specific stock vaccine resulted in transient defervescence only. Because of similarity between *Brucella melitensis* and Bang's *Bacterium abortus*, the cause of epizootic abortion, the authors injected 0.75 cc. of an extract of *Bacterium abortus*, into a patient to whom they gave 20 drops of a 1 : 1,000 solution of epinephrine hydrochloride by mouth at the same time. After a short chill followed by high temperature, the patient became normal in twenty-four hours and all the symptoms disappeared. Recovery was complete and has now extended over several months. This is the

third case in which this method has been applied with good results (Courtois-Suffit in 1926; Cambassadès and Cochez in 1927). The vaccine is an emulsion of pulverized microorganisms which may be used either in the whole form or as a purified antigen by removal of the nucleoproteins.

Death of Professor Letulle

Prof. Maurice Letulle is dead at the age of 76 years. His official career has been brilliant. He succeeded Cornil as professor of pathologic anatomy at the Faculté de Paris and was successively head physician of the St. Antoine and Boucicaut hospitals. Before he retired, he organized a museum in the latter hospital by collecting original drawings, aquarelles, photographs, pathologic specimens and microscopic sections to the extent that they are probably the most remarkable collection in the world. He wrote a great deal, on all subjects of pathologic anatomy and general pathology. His best known works are "Fevers," "Inflammation," "Suppuration," and various monographs. His monograph on the lung is a monumental work, the publication cost of which was paid in part by Dr. Henri de Rothschild. He was a member of the Académie française and one of the founders of the *Presse médicale*.

JAPAN

(From Our Regular Correspondent)

Jan. 27, 1929.

A New Cause of Beriberi

Prof. Dr. Matsumura, professor in the China Imperial University, has published a new view on the cause of beriberi. Since 1924, the professor has been making researches on the effect of poor nutrition on the bacilli in the intestine of animals, and in the course of his researches it happened that the cocks and doves, fed on polished rice only, were found to have a special bacillus in the intestine. The professor succeeded in cultivating the bacillus artificially, and on investigation it proved to be the cause of beriberi, by which disease the birds were attacked after they were weakened as a result of poor nutrition. After many investigations made on patients with beriberi and by animal tests, he concluded that: The bacillus might be found in the feces of patients with beriberi as well as in the feces of birds with the disease; the bacillus could not be found in the feces of healthy persons and healthy animals; the test animals, infested with the bacillus, would develop beriberi; the serum from patients as well as from animals with beriberi had a special coagulative action on the bacilli; therefore, the examined bacillus can be considered to be the cause of beriberi as a result of a deficiency of vitamin B. The bacillus has been named Chiba beriberi bacillus by the professor. Dr. Kato, medical member of the Kure Naval Hospital, has published experimental results that agree with Dr. Matsumura's researches. He experimented on patients and animals with beriberi with cultures of the Chiba beriberi bacillus given to him by the professor. In forty-four human cases examined with the bacillus, serum diluted 200 times still exerted its coagulative action.

Investigation of Lepers

Following a decision of the health conference of the League of Nations held in May, last year, Prof. Dr. M. Nagayo sent a circular to the leprosy institutes in this country, and asked for information on the distribution of lepers, their isolation, early examination of the disease, and cure of the disease. Mr. Yotsuya, expert of the health bureau, has published the results of the investigation made in 1925 by the home department. According to his publication there are 15,351 lepers, 10,925 of whom are male and 4,409 female, while seventeen are not listed as to sex. The number of cases between the ages of 31 and 35 years is the largest in both sexes; next come the ages of 26 to 30. It is hard at present to find out the relation between occupation and the processes of infection. There are 9,718 farmers, the largest number in any class; next come 700 merchants. In order to establish a new international leprosy institute with the aid of the Rockefeller Foundation, the Brazilian authorities wish to receive one of our medical scholars who will study lepra biology.

A New Medical College for Women

The building of the newly established Teikoku Women's Medical College near Tokyo has been completed. The ceremony was held, October 28 of last year.

The Fourth Pan-Pacific Congress of Science

Under the auspices of the Dutch government, the Fourth Pan-Pacific Congress of Science is to be held in Batavia, Java, for two weeks in May. Japan will send more than twenty-five delegates, most of whom will be professors of the universities. Dr. K. Hattori, chief of the Emperor's Biologic Institute (in the Fukiage Palace, Tokyo) will also attend the congress by order of the emperor. The emperor, who is well versed in biology, especially in the knowledge of shell-fish, wishes Dr. Hattori to take a journey over the South Sea Islands and collect biologic material for the sake of the emperor's researches. Marquis G. Tokugawa, who has his own biologic institute, will accompany Dr. Hattori. The delegates will leave for Java toward the end of April.

Advertisement Union of the Medical Magazines in Tokyo

The advertisement union of the medical magazines in Tokyo was established last December. The magazines number seventeen in all, and the address of the union office is The Tokyo Ijizasshi Kyokai, Wakagi No. 6, Shibuyamachi, Tokyo Prefecture.

Destruction of Shell-Fish

For three days beginning January 13 nearly 200 people of the village in Chiba Prefecture where the miracidium of *Schistosomum japonicum* was first found endeavored to destroy the shell-fish that serve as intermediate hosts to this parasite in the quagmires along the Kashima River. In order to drain the quagmires they dug more than 4,000 ditches to the river and then burned the withered grass, under the direction of the health officers of the local health office.

General Session of the Japan Medical Society

The seventh general session of the Japan Medical Society will be held in Osaka this year. Dr. Sata is to preside at the session. The organization committee has met and planned to invite twenty famous scholars of medicine from Europe and America.

Personal

It is reported that Dr. Araki, biochemist and president of the Kyoto Imperial University, is going to retire from his post.

Prof. Maeda, professor of orthopedics in the Kumamoto Medical College, is to succeed Professor Katsura in the Keio Medical College.

Prof. J. Sato has been chosen to fill the post of Dr. S. Miura, late professor of pediatrics in the Kyoto-fu Medical College.

Dr. S. Imamura, dean of the Kyoto Imperial University, will soon be honored by his friends and followers for his twenty-five years' service in the university.

Dr. K. Yamada, chief of the medical bureau, was succeeded by Dr. T. Goda, chief of the army medical college, Dec. 20, 1928.

Dr. Yayoi Yoshioka, head of the Women's Medical College, who went to the Pan-Pacific Women's Congress in Honolulu last summer and to America after the congress, was given a

welcome feast by her friends and graduates of the college on the 20th of last December.

Dr. S. Nishio, father of Dr. C. Nishio, professor in the Keio Medical College, died, December 16 of last year.

BUENOS AIRES

(From Our Regular Correspondent)

Dec. 28, 1928.

Executive Board of Public Health

When President Irigoyen took charge of the government, the newspapers announced that he planned to form an executive board of public health, which would be organized and directed by Dr. A. Agudo Avila. This branch would unite the services of the national department of hygiene, the public help department of the federal capital, the welfare society, and the committee of the regional asylums and hospitals. This step would permit the better unification and coordination of the pecuniary resources and the work and institutions of prophylaxis and treatment, but it is doubtful whether the municipality of the capital and the welfare society would accept this direction. They are powerful organizations and it is probable that they would oppose this plan. Dr. Conrado Migeuz has been appointed director of the public help department of the federal capital. The presidency of the national department of hygiene is still in charge of Dr. Tiburcio Padilla, Jr., notwithstanding the fact that he resigned in October.

First National Congress of Surgery

On November 11, the First National Congress of Surgery was inaugurated. The organizing committee was composed of Prof. Dr. A. Marotta, president; Dr. J. M. Allende, vice president, and Drs. A. Ceballos, M. Ruiz Moreno, R. Pasman and A. G. Gallo, secretaries. Drs. Viñas and Abalos spoke during the inaugural session. There were meetings, surgical sessions, an exposition of surgical material, and film projections. The two official subjects were surgery of fractures and surgery of exophthalmic goiter. Profs. José M. Jorge and A. Zeno of Rosario spoke on the first subject and Drs. J. Arce and M. Balado on the second. Drs. Allende and B. M. Calcagno spoke on hernias; A. Ceballos and A. Burlando, on postoperative peptic ulcer; Marotta and Priani, on transfusion; Dr. R. Rodríguez Villegas, on surgery on diabetic patients; R. A. Rivarola, on prophylaxis and treatment of Heine-Medin disease; L. Tamini, on muscular reeducation; J. C. Ahumada and C. Prestini, on treatment of cancer of the uterus; J. A. Bengolea and A. J. Pevlovski, on cancer of the large intestine; M. Balado, on surgery of nerves, and Jorge, on facial prosthesis. Solè, Vernengo, Valls, Ottolenghi, Girardi, Zorraquin, Gómez, Gamboa, Greco, Jaúregui and others also read papers.

Prophylactic Measures

The president of the republic has ordered inspection of all ships that enter the various ports in an attempt to keep them from bringing rats into the country. Laws have been adopted providing for the disinfection of ships and trains with hydrocyanic acid. The public help department of the federal capital is vigorously enforcing the compulsory vaccination law.

First Latin American Conference of Neurology, Psychiatry and Legal Medicine

The First Latin American Conference of Neurology, Psychiatry and Legal Medicine was held November 14 to 17. It was organized by Professor Lea Plaza of Chile and the Society of Neurology and Psychiatry of Buenos Aires, Dr. Arturo Ameghino being the president and M. Sepich, secretary. The delegates were Professors Fontecilla, Lea Plaza, Benítez and others from Chile; Professors Roxo, Esposel, Lopes, and Pacheco Silva from Brazil; Dr. Velasco Blanco from Paraguay, Loudet from Nicaragua, Rojas from Ecuador and Sicco, Schneider and Estape from Uruguay.

A number of papers were presented, containing contradictory opinions on the value of malaria in the treatment of paresis. Professor Borda said that generally the results are not satisfactory and he recalled the fact that, although the treatment for syphilis has been improving since 1906, the percentage of patients with paresis is stationary in relation to the total number of patients who are admitted to the hospital. The discussion was interesting.

Several resolutions were approved: for compulsory legal examination of all those in prisons (Bosch); coordination of the sanitary efforts of all South American countries to control leprosy (delegation from Brazil); that judicial morgues serve for the teaching of legal medicine (Rojas, Benítez, Berman, Bosch); establishment of services for madmen in all hospitals (Bosch); compulsory teaching of psychiatry (Sicco); statistics on neurosyphilis and its relation to drugs (Aluralde and Sepich); control of alcoholism by means of public education and restriction of the preparation and selling of alcoholic beverages (Brazilian delegation); necessity of establishing psychiatric clinics at universities (Fontecilla); establishing of neuropsychiatric clinics for children (Ciampi, Ameghino, Bosch); juvenile welfare organization (Catalan), and psychiatric clinics with a department for ambulatory patients (Delegation from Peru). Besides this, papers were read by Drs. Obarrio, Bard, Beltran, Sierra, Gorriti, Loudet, Viale, Ciampi, Camauer, Jakob, Bossi, Raizin, Benítez, Fracassi, Dimitri, Balbey, Dowling, Montanaro, Hannon, Merzbacher and Orlando. The congressmen visited the principal psychiatric establishments (Melchor Romero, Open Door, Asilo de Alienados, Hospicio de las Mercedes). The second congress will be held in 1930, in Rio de Janeiro, Dr. Esposel acting as organizer and secretary.

Personal

Prof. José Arce was recently honored by his friends and colleagues for his twenty-five years of service to the profession. A bust of him was unveiled at the Instituto de Clínica Quirúrgica, which he established and directs.

Dr. A. Gomes de Faría is working on piroplasmosis and anaplasmosis bovina (tristeza) at the Bacteriologic Institute of the National Department of Hygiene.

Profs. S. Mazza and J. Bacigalupo have left for Cairo to attend the Congress of Pathology and Tropical Medicine, which will be held there.

Dr. A. Bissotti has returned from the United States and Europe, where he carried on studies on nutrition.

Dr. Miguel Ibañez Piuggari has been appointed director of the Ophthalmologic Hospital Santa Lucía.

Dr. Juan Carlos Montanaro has been appointed head of the service of neurology of the Hospital for Foundling Children (niños expósitos).

University Strikes

The strike of the students continues at Cordoba and Rosario. Dr. Roque Izzo, professor of the Faculty of Medicine of Buenos Aires, has been appointed supervisor. In Cordoba the instructors announced an examination, but only a few pupils attended; the others stormed the university and made the faculty remain inside. Disciplinary action was ordered against the leaders by the superior council. The rector, Dr. Luis J. Posse, closed the university and prohibited the entrance of both instructors and deans.

Death of Professor Ommes

Prof. Carlos J. Ommes, a French physician, vice dean and professor of therapeutics in Buenos Aires, died recently.

BERLIN

(From Our Regular Correspondent)

Jan. 12, 1929.

The Federal Census of Venereal Patients

According to published statistics of the Reichsgesundheitsamts (bureau of health), the federal census of venereal patients for 1927, toward the compilation of which 93.6 per cent of the questioned general practitioners, 95.5 per cent of the specialists in dermatologic and venereal diseases, and 97.5 per cent of the hospitals, contributed, reveals a considerable decrease of venereal patients as compared with the prewar period and the first years after the war, especially with reference to chancroid and also as regards syphilis, the decrease being most marked in the large cities. The total number of venereal patients in Germany for the census year 1927 was 370,000, or 8.0 males and 3.5 females per thousand of population. The higher incidence of venereal disease among men in comparison with women is due mainly to more numerous cases of recent gonorrhea. About four fifths of the male and almost two thirds of the female patients were affected with gonorrhea. Since the cases of blennorrhea adultorum, chancroid and congenital syphilis, taken as a whole, do not constitute quite 5 per cent of the whole morbidity, the remaining cases come under the head of primary and secondary syphilis.

The morbidity reached the highest figures in the 20 to 29 age groups, there having been more than twenty-six cases in males and about ten cases in females per thousand of population of the corresponding age groups. The morbidity of the female sex from recent gonorrhea was only in childhood; chronic gonorrhea, however, extended into the third (ages 20 to 30) and secondary syphilis even into the fourth decade (ages 30 to 40)—higher than in the male sex; but, from age 40 on, the total morbidity declined more rapidly in the female sex than in the male sex.

The decline in venereal diseases is doubtless the result of the systematic crusade that has been waged against them, and particularly of the earlier treatment that patients now receive, which aids greatly in the elimination of the danger of infection. Nevertheless, the results of the census show that treatment is often begun too late, especially as regards the female sex. Whereas in the male sex only one chronic case of gonorrhea was found to seventeen recent cases, in the female sex one fifth of the cases received the first medical treatment in the chronic stage. Of chancroid there was only one case in females to seven in males. Of acquired syphilis, only one tenth of the cases in females received medical treatment in the primary stage; in the male sex, however, four tenths. The number of cases of latent secondary syphilis in the female sex was large, the condition having been discovered doubtless frequently in connection with other diseases or through the routine serologic blood examinations that are carried out in many institutions. Especially frequent were cases of postponed treatment in the higher age groups, in women separated from their husbands, and in the smaller communities.

In communities with less than 10,000 inhabitants, the morbidity was not half as great as the average for the whole *reich*. In the large cities, however, it was almost twice as large, and considerably higher still in the harbor cities, and in Berlin, Frankfort-on-the-Main, Hanover, Stuttgart, Karlsruhe, Erfurt and Münster.

About half of the men and one third of the women were treated by specialists, and one tenth and two tenths, respectively, in institutions.

The incidence of venereal disease in the navy was rather high, but lower than in the male population of the same age in the harbor cities. In the army the incidence was not as high as that which prevailed, on the average, among men of the same age in the large cities.

Health Tobacco

As has been revealed by investigations undertaken by the federal bureau of health and other competent observers, there are several brands of tobacco on the market bearing such descriptions as "denicotinized," "nicotine poor," "nicotine-free," "nicotine safe," "natural low nicotine content," "nicotine neutralized," which contain just as much nicotine as ordinary tobacco. Thus they are dangerous, since sensitive or ill persons who are permitted only nicotine-free tobacco by their physicians may have their health injured by the use of such tobacco. At the suggestion of the federal health bureau, the Prussian minister of public welfare has requested the government boards and the chief of police of Berlin to inform the officers entrusted with the supervision of food products and also to enlighten the economic circles interested. The Pful and Schmitt procedure worked out in the federal health bureau has been found to be unobjectionable and reliable. The results obtained with this procedure have been confirmed by the biologic experiments carried out by Prof. Dr. Heiduschka in Dresden and Prof. Dr. Popp in Frankfort-on-the-Main.

The Cancer Commission of the League of Nations

The radiologic commission of the League of Nations met recently at the Universitätsfrauenklinik in Munich to study the equipment and the technical methods of the radiologic department. Professor Döderlein, director of the clinic, spoke on radiologic treatment in gynecologic practice. The experiences of the clinic extend over a period of fifteen years. In contrast to the radium institutes in Paris and Stockholm, in which radium is used exclusively, in Munich radium and roentgen rays are used in combination. This procedure accomplishes at least as much as surgical intervention, if not more. Likewise in inoperable cases, which were formerly regarded as hopeless, from 10 to 12 per cent of lasting cures are effected. It is thought that possibly with improvement of the working methods and technic these results can be still further improved. On the basis of observations in the Döderlein clinic, which doubtless offers unsurpassed opportunities for observations, Professor Voltz, director of the radiologic department of the clinic, was able to demonstrate the course of developments. Professor Wintz of Erlangen gave a report on the exclusive roentgen treatment in his clinic. According to his statistics, roentgen treatment alone, if systematically employed, will accomplish worth-while results. A film was used to demonstrate the methods in vogue in the Erlangen clinic.

The report, which will form the basis for the further researches of the commission, will contain a chapter to be prepared in collaboration by Professors Heymann, Stockholm; Voltz, Munich, and Dr. Lacassagne, Paris. The report will contain instructions and will recite the conditions for a systematic radiologic treatment. The directions and criteria outlined by Professor Regaud of Paris will serve as a basis. In addition, the report will contain a critical discussion of the working methods employed in the three large radiologic institutes of Stockholm, Munich and Paris, and will give the most recent world statistics collated by Dr. Lane-Claypon of London. The three institutes of Munich, Stockholm and Paris have agreed to group their patients according to definite and uniform classifications and to work according to uniform, recognized criteria, in order thus to obtain a common basis of development for the purposes of future study and to make possible an exchange of experiences. The studies and researches will then be continued in other institutes and clinics.

The Influenza Epidemic in Berlin

For several weeks past Berlin has been suffering from an epidemic of influenza, such as was reported some time ago from America. At the largest *ortskrankenkasse* in Berlin, 1,400 influenza patients were reported on January 4. About the same

number of cases developed on the following days. January 10, 1,348 influenza cases were admitted to the Berlin hospitals, there being 273 instances of pneumonia among them. Since January 1, forty-eight deaths from influenza have been reported in Berlin.

BELGIUM

(From Our Regular Correspondent)

Nov. 20, 1928.

Social Defense Against Recidivists and Abnormal Persons

The *loi de défense sociale* pertaining to abnormal delinquents and to recidivists, which the lower house has just adopted by a large majority and which is now being considered by the senate, is a remarkable document showing the evolution of penal ideas in the matter of dealing with delinquents, and constitutes much needed social legislation in the crusade against crime. In an article in the *Bruxelles-Médical,* Dr. Vervaeck discusses some of the essential points of the law. The first question that arises is: How are abnormal persons to be studied and recognized? According to the terms of the law, their observation will be carried out in a special psychiatric annex of the jail. This measure will almost always be necessary, except in case of their internment in a psychopathic hospital. It is very difficult to observe under favorable conditions an accused person of an abnormal mind if he is allowed his liberty, and it frequently happens that he escapes the examination by experts. If placed in an ordinary cell of the jail, his mental disorders might pass unperceived, and on the occasion of being visited by physicians, whom he is usually able to recognize by their bearing, the accused habitually assumes an attitude of "defense," which renders his psychiatric observation difficult. The law grants to the courts of instruction and judgment the power to impose the internment of accused persons in a state of dementia, mental insufficiency or mental disequilibrium.

The duration of the internment of abnormal accused persons is fixed by the court. It may be five, ten or fifteen years, according to the relation it bears to the act committed. However, should the mental state of the abnormal person improve sufficiently to justify the belief that he no longer constitutes a social menace, the commission will advise that he be dismissed. His liberation may be ordered on a tentative basis, and in that case the abnormal person will be subjected, for a year at least, to psychiatric observation, the exact nature of which will be fixed by the liberation order.

With regard to recidivists, the new law provides a prolonged elimination from human society for delinquents who show themselves refractory to penitentiary discipline. On the expiration of their sentence, certain recidivists and habitual delinquents may be placed at the disposal of the government for a period ranging from five to twenty years, according to the gravity of their offenses. The system of management applied to recidivists interned in behalf of the protection of society in institutions to be designated by the government and organized after the manner of labor colonies will differ frankly from the repressive type of imprisonment that it will replace. The discipline, while firm, will be without useless severity, the two chief objectives being: (1) prevention of escape, and (2) organization of the work of the recidivists on a productive basis, with a view to indemnifying the government for the expense of their maintenance. The government institutions will assume likewise a certain measure of responsibility for the amelioration of their defects and diseases, and will develop, as far as possible, their industrial fitness, in the hope of facilitating their eventual readmission to society.

Dr. Vervaeck holds that, from the penal, social and moral point of view, there is no doubt that the *loi de défense sociale* marks considerable progress. It is a practical means of waging an effective crusade against the violent attacks and other delinquencies of insane and abnormal persons who live on the outer edges of society and constitute a disquieting menace. As a eugenic measure, it will serve as a means of directing thought toward other forms of eugenic legislation. Further legislation in this direction should be moderate (as is the proposed law just cited), have a true scientific basis, and be considerate of individual beliefs and of personal liberty.

Medical Inspection of Schools

The problem of the medical inspection of schools still remains a live topic. It appears that the organization of a body of school nurses (women) is not feasible at present, and many physicians advise the utilization of the men and women teachers as substitutes. The instructional corps has every reason to collaborate with the physician for the advancement of his work. The child who is not fit from the physical point of view will do only mediocre intellectual work. It is therefore desirable that the teachers (both men and women) be informed as to the results of medical examinations, and there are reasons why they should participate in the examinations. The physician will, under many conditions, find the collaboration of the personnel of the schools very useful. The teacher has himself received instruction in school hygiene. He is acquainted with the laws of growth. He is capable of taking anthropometric measurements and performing sensory tests under the guidance of the physician, from whom he may learn of pedagogic indications. The teacher is interested in the biologic and psychologic problems on which modern pedagogy is based, and the medical inspection of schools is a medicopedagogic problem. The Fédération médicale belge will soon be obligated to take a definite stand toward the problem.

Skin Reaction in Pertussis

Before the Société royale des sciences médicales de Bruxelles, M. V. Pechere discussed recently the results of the control of skin reaction by means of cultures of Bordet's bacillus. Of 104 skin reactions, seventy gave positive results, and in sixty, or 84 per cent, of these, pertussis was actually present. Eleven children in whom the reaction was positive were not affected with pertussis. Of twenty-three children with a negative reaction, 16 per cent had whooping cough and 84 per cent had typical paroxysmal coughs. Encouraged by these results, the author instituted a second series of careful researches, with the following outcome: Of ten children in whom pertussis had been definitely diagnosed there were exactly ten positive skin reactions; of twenty-four cases of pertussis in process of evolution, twenty gave positive skin reactions, one gave a negative reaction, and three disappeared; of seven children who did not have pertussis, six gave a negative reaction and one a positive reaction (a carrier of bacilli). The author concludes from his researches that the intradermal reaction enables one to make an early diagnosis of pertussis with a high degree of exactitude. Possibly vaccination will give better results.

Meeting of the Association of Physiologists

The second meeting of the Association of French-Speaking Physiologists was held in Brussels, July 16, 17 and 18, 1928, under the chairmanship of Prof. Georges Schaeffer of Strasbourg. Of the numerous communications and demonstrations presented in the institutes of physiology and biologic chemistry, and in the laboratory of therapeutics, may be mentioned the following: heat regulation and the metabolism of water, by M. Charles Kayser; experiences with thermogenesis, by MM. André Mayer and Nichita (of Paris); researches on the blood platelets—the spleen as a reservoir of platelets, by MM. Léon Binet and M. Kaplan (of Paris); studies on the chronaxia, or time value, of paradoxic contraction, by M. Henri Fredericq of Liége, and researches on the reflexes, by Dr. Bremer.

Marriages

JAMES V. SEIDS, Cleveland, to Miss Alice Emily Campbell of Bloomington, Ind., January 25.

ROBERT HARVEY BELL, Houston, Texas, to Miss Virginia Kimball of Palestine, January 4.

FREDERICK R. CROWGEY, Salem, Ohio, to Miss Olive Dickey of New Castle, Pa., recently.

HARRY B. DITMORE to Miss Pauline Ramsey, both of Marshall, N. C., Dec. 20, 1928.

CHARLES C. NORRIS, Philadelphia, to Mrs. William J. Farr, January 12.

Deaths

Charles Lyman Greene ⊕ St. Paul; University of Minnesota College of Medicine and Surgery, 1890; chairman of the Section on Practice of Medicine of the American Medical Association, 1913-1914; formerly professor and chief of the department of medicine at his alma mater; member of the Association of American Physicians and the American College of Physicians; served during the World War; past president of the Minnesota State Medical Association; on the staffs of the Miller Hospital, State Hospital for Children and St. Luke's Hospital; author of "The Medical Examinations for Life Insurance and Its Associated Clinical Methods," and "Medical Diagnosis"; aged 66; died, January 19, of cerebral hemorrhage.

Francis John Shepherd, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1873; M.R.C.S., England, 1874; emeritus dean and emeritus professor of anatomy at his alma mater; member of the American Surgical Association; past president of the Canadian Medical Association; vice president of the International Dermatological Congress in 1894 and 1907, and the Surgery International Medical Congress in 1914; formerly on the staffs of the Montreal General Hospital and the Victoria General Hospital; aged 77; died suddenly, January 18.

Foster Harrington Cary ⊕ Denver; Harvard University Medical School, Boston, 1898; member of the Massachusetts Medical Society; assistant professor of obstetrics, University of Colorado School of Medicine; formerly on the staffs of the City Hospital and the Memorial Hospital, Worcester, Mass.; aged 54; died, Dec. 22, 1928, of influenza and pulmonary tuberculosis.

Edward G. Folsom, Mount Clemens, Mich.; Chicago Homeopathic Medical College, 1877; past president of the Macomb County Medical Society; city health officer; formerly postmaster; aged 74; died, in January, of skull fracture received when struck by his automobile in attempting to push it out of a snowbank while it was in gear.

Elmer Ellsworth Lynch, Marion, Ohio; Toledo Medical College, 1895; member of the Ohio State Medical Association; served during the World War; at one time mayor of Ridgeway and member of the board of health of Marion; formerly on the staff of the Marion City Hospital; aged 64; died, January 26, of rheumatic arthritis.

Nugent George Frost, Humboldt, Ariz.; University of Maryland School of Medicine and the College of Physicians and Surgeons, Baltimore, 1918; member of the Medical and Chirurgical Faculty of Maryland; aged 34; died, Dec. 29, 1928, at Kingman, of pulmonary tuberculosis.

Wendell Abraham Anderson, La Crosse, Wis.; Medical Department of Columbia College, New York, 1863; Civil War veteran; formerly mayor of La Crosse, and president of the board of education; aged 88; died in January, at the home of his son in Seattle, of heart disease.

William H. Sharpley ⊕ Denver; Gross Medical College, Denver, 1898; past president of the Colorado State Board of Health; at one time mayor of Denver and city health officer; formerly connected with the City and County Hospital; aged 74; died, Dec. 5, 1928.

Andrew Engberg ⊕ McPherson, Kan.; Bellevue Hospital Medical College, New York, 1886; past president and secretary of the McPherson County Medical Society; aged 66; died, January 10, at the Providence Hospital, Detroit, of pneumonia, following influenza.

Harrison Prew Simpson, Beulah, Miss.; Memphis (Tenn.) Hospital Medical College, 1905; member of the Mississippi State Medical Association; aged 49; died, January 27, in a hospital at Greenville, of an accidental gunshot wound received while hunting.

Isaac Thomas Houck, Louisville, Ky.; Medical Department University of Tennessee, Nashville, 1889; member of the Kentucky State Medical Association; served during the World War; aged 64; died, January 28, at St. Anthony's Hospital, of influenza.

Henry T. Trantham, Salisbury, N. C.; Medical Department of the University of the City of New York, 1875; member of the Medical Society of the State of North Carolina; aged 76; died, January 23, at the Salisbury Hospital, of carcinoma.

George W. Lee ⊕ Yates Center, Kan.; Marion-Sims College of Medicine, St. Louis, 1892; College of Physicians and Surgeons, Keokuk, Iowa, 1894; aged 61; died, January 19, at St. Francis Hospital, Wichita, of bronchopneumonia, following influenza.

Andrew John Anderson, Long Island City, N. Y.; Medical Department of Columbia College, New York, 1890; member of the Medical Society of the State of New York; served during the World War; aged 61; died, January 20, of heart disease.

Horace Ward McKenzie, Duncannon, Pa.; Hahnemann Medical College of Philadelphia, 1889; member of the Medical Society of the State of Pennsylvania; aged 65; died, January 4, at the Keystone Hospital, Harrisburg, of pneumonia.

Leonidas Michael Brunet, River Rouge, Mich.; Montreal School of Medicine and Surgery, Montreal, Que., Canada, 1874; member of the Minnesota State Medical Association; aged 81; died, January 7, of cerebral hemorrhage.

Dennis James Carroll ⊕ Rutland, Vt.; University of Vermont College of Medicine, Burlington, 1910; served during the World War; on the staff of the Rutland City Hospital; aged 46; died, January 18, of heart disease.

George Omer Blair ⊕ Tiro, Ohio; Kentucky School of Medicine, Louisville, 1892; president of the Crawford County Medical Society; aged 63; died, January 23, of septicemia, following an abrasion on the thumb.

Benjamin Bradford Halliburton ⊕ Toledo, Ohio; Vanderbilt University School of Medicine, Nashville, Tenn., 1924; aged 32; on the staff of the Toledo Hospital, where he died, January 21, of lobar pneumonia.

George Alexander Stubbs, Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1926; member of the Medical Society of the State of New York; aged 30; died, January 9, of pneumonia.

Joseph Edward Tibbins, Beech Creek, Pa.; Jefferson Medical College of Philadelphia, 1875; member of the Medical Society of the State of Pennsylvania; aged 81; died, Dec. 7, 1928, of chronic myocarditis.

James Timothy Johnson, College Grove, Tenn.; Vanderbilt University School of Medicine, Nashville, 1891; member of the Tennessee State Medical Association; aged 65; died, Dec. 30, 1928, of heart disease.

Austin Clark Logan, Youngstown, Ohio; University of Pittsburgh School of Medicine, 1913; member of the Ohio State Medical Association; aged 44; died, January 28, of cerebral hemorrhage.

William C. Robeson, Fort Recovery, Ohio; Medical College of Ohio, Cincinnati, 1876; member of the Ohio State Medical Association; aged 76; died, January 22, of pneumonia, following erysipelas.

Doyle Lee Eastland ⊕ Waco, Texas; University of Pennsylvania School of Medicine, Philadelphia, 1910; on the staff of the Providence Sanitarium; aged 45; died, January 11, of lobar pneumonia.

George Norman Lucas, Brownsville, Texas; College of Physicians and Surgeons, Chicago, 1895; formerly on the staff of the Elgin (Ill.) State Hospital; aged 68; died, January 25, of heart disease.

Horace Greeley Carmalt, Pittsburgh; Hahnemann Medical College and Hospital of Philadelphia, 1902; served during the World War; aged 55; died, January 1, of pneumonia, following influenza.

John P. Boothe, Olean, N. Y. (licensed, New York, year unknown); member of the Medical Society of the State of New York; for twenty years health officer of Olean; aged 94; died, January 10.

Matthew Lincoln Turner ⊕ Des Moines, Iowa; Medical Department University of Indianapolis, 1896; member of the Central States Pediatric Society; aged 63; died, January 26, of heart disease.

James Edward Smith ⊕ Altoona, Pa.; Jefferson Medical College of Philadelphia, 1887; formerly on the staff of the Altoona Hospital; aged 67; died, January 13, of cerebral hemorrhage.

William D. Wall, Slaughter, La.; Medical College of Virginia, Richmond, 1865; Confederate veteran; aged 85; died, January 16, at the home of his daughter in Houston, Texas, of influenza.

Willis A. Crum, Caledonia, Ohio; Starling Medical College, Columbus, 1894; formerly member of the board of education and mayor of Caledonia; aged 63; died suddenly, January 13.

Covington Hardy Sharp ⊕ Laurel, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1915; served during the World War; aged 39; died, January 30, of pneumonia.

Gilbert Philips Robinson, Spokane, Wash.; Loyola University School of Medicine, Chicago, 1926; aged 29; died, Dec. 25, 1928, at St. Luke's Hospital, of meningitis, following influenza.

John O. Grubbs, North McAlester, Okla.; Missouri Medical College, St. Louis, 1887; member of the Oklahoma State Medical Association; aged 66; died, January 16, of pneumonia.

Max Aaron Helfgott ⊕ Washington, D. C.; Maryland Medical College, Baltimore, 1912; formerly health officer of Sioux City, Iowa; aged 46; died, February 3, of heart disease.

Newton Sager, La Fayette, Ohio; University of Wooster Medical Department, Cleveland, 1871; aged 82; died, January 7, at the Masonic Home, Springfield, of carcinoma of the prostate.

Donald D. MacTaggart, Montreal, Que., Canada; McGill University Faculty of Medicine, 1896; professor of medical jurisprudence at his alma mater; aged 67; died, January 4.

Charles Franklin Percival Abraham ⊕ East Orange, N. J.; Trinity Medical College, Toronto, Ont., Canada, 1891; aged 56; died, January 14, of cerebrospinal sclerosis.

Arthur Joseph Guittard ⊕ Lieutenant, U. S. Navy, Brooklyn; Western Reserve University School of Medicine, Cleveland, 1928; aged 28; died, January 2, of influenza.

David Clarence Vance ⊕ Philadelphia; Temple University School of Medicine, Philadelphia, 1913; aged 51; died, January 20, of carcinoma of the stomach and liver.

J. F. Findley, Cave Spring, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1902; also a druggist; aged 53; died, January 8, in a hospital at Rome.

William Beauregard Crisp, Roxboro, N. C.; College of Physicians and Surgeons, Baltimore, 1885; aged 68; was found dead in bed, January 11, of angina pectoris.

Isaac S. Earhart, Mulberry, Ind.; Medical College of Ohio, Cincinnati, 1866; aged 88; died, January 19, at the St. Elizabeth's Hospital, Lafayette, of heart disease.

Luther Lynnville Alexander, Paris, Tenn.; University of Louisville (Ky.) School of Medicine, 1877; aged 77; died, January 17, of pneumonia, following influenza.

Merritt B. Smiser, Culleoka, Tenn.; University of Nashville Medical Department, 1873; aged 80; died, January 20, of uremia, influenza and bronchopneumonia.

Joseph A. Crum, Bath, Mich.; Chicago Homeopathic Medical College, 1898; aged 55; died, January 17, at the Edward W. Sparrow Hospital, Lansing.

Aaron Albert Cecil, Muncie, Ind.; Medical College of Ohio, Cincinnati, 1886; for twelve years county coroner; aged 74; died, January 19, of angina pectoris.

Arthur True Buswell, Waltham, Mass. (licensed, years of practice); aged 76; died, Dec. 2, 1928, at the New England Sanitarium, Melrose, of heart disease.

William N. Yost, Findlay, Ohio; Miami Medical College, Cincinnati, 1867; Civil War veteran; formerly coroner; aged 91; died, in January, of heart disease.

Charles H. Bubert, Baltimore; College of Physicians and Surgeons, Baltimore, 1888; aged 64; died, January 31, at the University Hospital, of pneumonia.

Charles B. Paddock, Fayetteville, Ark.; Louisville (Ky.) Medical College, 1898; member of the Arkansas Medical Society; aged 65; died, January 3.

Frederick L. Stein ⊕ San Francisco; Hahnemann Medical College of the Pacific, San Francisco, 1917; aged 44; died, January 9, at St. Mary's Hospital.

J. B. Harris, Stewart, Miss.; Medical Department University of Tennessee, Nashville, 1887; aged 67; died, January 26, at Jackson, of cerebral hemorrhage.

William H. J. Lewis, Fond du Lac, Wis.; Rush Medical College, Chicago, 1880; aged 77; died in January, at the Wisconsin Masonic Home, Dousman.

Daniel H. Pettingell ⊕ Midas, Nev.; St. Louis University School of Medicine, 1906; aged 54; died, Dec. 8, 1928, of pneumonia, following influenza.

Henry Gordon Tandy, Chicago; L.R.C.S., L.R.C.P., Edinburgh, 1887; L.F.P.S., Glasgow, 1887; aged 64; died, February 1, of chronic nephritis.

Patrick J. Sullivan, Muskegon, Mich.; University of Michigan Medical School, Ann Arbor, 1890; aged 68; died, January 15, of cerebral hemorrhage.

Jason Emmett Billington, Enterprise, Okla.; College of Physicians and Surgeons, Dallas, Texas, 1907; aged 58; died, January 12, of myocarditis.

Oscar Ernst Blank, Perryton, Texas; St. Louis University School of Medicine, St. Louis, 1918; aged 36; died in January, at Liberal, Kan.

Thomas Buford M. Craig ⊕ Nevada, Mo.; Beaumont Hospital Medical College, St. Louis, 1896; aged 58; died, January 24, of heart disease.

Peter Stouffer, Homeworth, Ohio; Jefferson Medical College of Philadelphia, 1886; aged 66; died suddenly, in January, of cerebral hemorrhage.

Joseph William Tarter ⊕ Iron River, Wis.; College of Physicians and Surgeons, Baltimore, 1895; aged 57; died in January, of influenza.

Walter W. Van Noy, Kiefer, Okla.; University of Louisville (Ky.) School of Medicine, 1876; aged 75; died, January 15, of influenza.

John Calvan Baxter, Auburn, Ind.; University of Louisville (Ky.) School of Medicine, 1887; aged 66; died, January 20, of heart disease.

James Nelson Frazee Elliot, Greene, N. Y.; Syracuse University College of Medicine, 1895; aged 63; died, January 16, of pneumonia.

Charles J. Rosenham, New York; Louisville and Hospital Medical College, 1908; aged 73; died, January 19, of carcinoma of the stomach.

Matthew Tovell, Sydenham, Ont., Canada; Victoria University Medical Department, Toronto, 1887; aged 73; died, Dec. 6, 1928.

William Andrew Staggs, Estherville, Iowa; Hahnemann Medical College and Hospital, Chicago, 1889; aged 73; died, January 14.

James Marvin Cunningham, Castille, La.; University of the South Medical Department, Sewanee, 1904; aged 51; died, January 2.

James Franklin Baker, Graniteville, S. C.; University of Georgia Medical Department, Augusta, 1890; aged 69; died, January 10.

Louis Nathaniel Lesser, Brooklyn; Long Island College Hospital, Brooklyn, 1909; aged 44; died, January 31, of pneumonia.

Edward T. Twining ⊕ Bridgewater, Iowa; Chicago Medical College, 1867; aged 84; died, January 17, of bronchopneumonia.

J. Morgan Dix ⊕ Metuchen, N. J.; Baltimore University School of Medicine, 1898; aged 61; died, January 11, of pneumonia.

Ulyssis Grant Vance, Waterloo, Ind.; American Medical College, St. Louis, 1898; aged 64; died, January 12, of paralysis.

George Overton Pope, Latham, Ill.; Michigan College of Medicine, Detroit, 1885; aged 66; died, Nov. 25, 1928, of heart disease.

Charles Henry Wetzel, Lake View, N. Y.; University of Buffalo School of Medicine, 1876; aged 76; died, Nov. 26, 1928.

Orin W. Sadler, Tarpon Springs, Fla.; Chicago Medical College, 1868; aged 85; died, January 2, of arteriosclerosis.

James Miller Shepard, Findlay, Ohio; Kentucky School of Medicine, Louisville, 1898; aged 60; died, January 15.

Arthur Ferdinand Hess, Lewisville, Ind.; Medical College of Indiana, Indianapolis, 1905; aged 44; died, January 22.

Hugh Kimbley, Owensboro, Ky.; University of Louisville School of Medicine, 1896; aged 54; died, January 3.

Monroe W. Webster, South Whitley, Ind.; Rush Medical College, Chicago, 1882; aged 77; died, January 9.

Bureau of Investigation

ERCOLIN

Another "Cold" and Hay Fever "Cure"

The Smith-Ernster Laboratories, Inc., of New York City exploit a "patent medicine" known as "Ercolin." Ercolin is said to be the "result of six years of intensive research" made by Dr. Nicolas Ernster, who, we are told, "obtained his degree of Ph.D. through his studies at universities at Berlin, Strassburg and of the Sorbonne at Paris." Ercolin is described as an "entirely new physiological compound," which "reacts on the protein of the pollen, thereby neutralizing the effect of ALL pollens." Here are some typical claims made in the newspaper advertising for Ercolin:

"Hay Fever Washed Away Instantly.
"Ercolin banishes runny eyes and nose, sneezing, blisters on eyes, headache, fever, etc., almost before you know it.
"Hay Fever Conquered in One Minute.
"Hay fever: That Awful Sneezing Ended Instantly.
"Hay Fever Washed Away in 1 Minute with Ercolin."

A circular that accompanied the trade package of Ercolin bore the following statement:

"The Ercolin formula has been analyzed and approved by the Massachusetts Board of Pharmacy."

A letter was written to the Massachusetts Board of Registration in Pharmacy, and the reply came back that that Board did no analytical work of any kind and that the statement relative to Ercolin was untrue. Another statement that appeared in the same circular read:

"The Ercolin formula, which has been tested and approved by the Massachusetts College of Pharmacy, is warmly endorsed by physicians and enthusiastically applauded by former hay fever victims as the greatest relief for hay fever ever known."

An inquiry directed to the Dean of the Massachusetts College of Pharmacy, brought the reply that the college gives no endorsements and had not done so in this case. It appears that an assistant professor in the department of chemistry of the college had been employed in a personal capacity to analyze the preparation, his work being limited by his clients to qualitative tests for alkaloids and naphthalene derivatives. When he had completed this work he wrote his report on Ercolin on the stationery of the Department of Chemistry of the Massachusetts College of Pharmacy. It is but fair to say that there was nothing in the report to justify the claim that the college itself had either tested or approved the preparation. The Smith-Ernster Laboratories, Inc., were notified by the Massachusetts College of Pharmacy that they had no right or authority to use the name of the college in any such way, and were told, further, that the college was prepared to take whatever steps were necessary to prevent further unauthorized use of its name. As a result, in September, 1928, the exploiters of Ercolin made arrangements to eliminate the statement from all future circulars and discarded what circulars they had on hand.

The claim that it had been warmly endorsed by physicians, apparently, has some basis in fact, judging from the photographic copies of certain letters written by reputable physicians. From these it appears that Dr. A. R. Sawyer of Boston is "glad to report" on the "results of Ercolin," having used it in his own family; that Dr. A. E. Alden of Lowell, Massachusetts, has "used Ercolin as a treatment for hay fever on four patients with very good results," and has "had the same good results" when using it for a "heavy cold"; that Dr. F. E. Garland of Boston has "used Ercolin to some slight extent" and found it "of value in the palliative treatment of vasomotor rhinitis"; that Dr. Leo A. Byrnes of Holyoke, Massachusetts, "while not a user of patent medicines," felt that a "note of commendation may serve to encourage" future users of Ercolin, as he had tried the preparation in the hospital of the Farr Alpaca Company's plant "as well as in private practice."

All of these letters from physicians had written across them, presumably by the company that exploits Ercolin, or else by the advertising agency, "Not to be used for advertising." This, one infers, meant that they were not to be directly reproduced in the newspaper advertisements but might be used to convince newspapers that they ought to accept Ercolin advertising! So long as reputable physicians continue to play into the hands of the "patent medicine" exploiters, just so long will the public be justified in assuming that the medical profession's attitude toward the evil of self-medication with secret remedies is academic rather than real.

In order to determine the composition of the product that washes away hay fever in one minute, the A. M. A. Chemical Laboratory was asked to analyze Ercolin. The chemists' report follows:

LABORATORY REPORT

"Four original packages of 'Ercolin' (Smith-Ernster Laboratories, Inc., New York, N. Y.) were submitted to the A. M .A. Chemical Laboratory for examination. Each package contained a brown bottle which, in turn, contained 130 cc. (approximately four fluid ounces) of a solution possessing a brown color and a slight odor.

"The directions accompanying the package indicated that Ercolin was not to be used as an inhalant but as a nasal douche. According to the advertising, Ercolin gives 'Instant Relief' to sufferers from hay fever and sinus infections.

"Qualitative tests indicated the presence of glycerine and a substance resembling gallic acid. Iodides, borates, metallic compounds and alkaloids were not found. In order to verify the tests for gallic acid, a sample of the crystals obtained by the evaporation of Ercolin and a sample of recrystallized gallic acid were submitted to a crystallographer, who reported that the crystals from Ercolin were almost entirely gallic acid. Quantitative determinations were as follows:

"Total solids ..... 0.61 per cent
"Ash ..... None
"Alkaloids ..... None

"From the foregoing, it is concluded that Ercolin is essentially a solution containing approximately 0.6 per cent gallic acid, to which has been added a relatively small amount of glycerin."

From the chemists' findings, we learn that this "marvelous remedy," perfected by the "eminent Boston scientist," Nicolas Ernster, Ph.D., as the result "of years of effort," is nothing more wonderful than a weak solution of gallic acid in dilute glycerine!

Correspondence

TECHNIC OF OPERATION FOR INGROWN TOE-NAIL

To the Editor:—In THE JOURNAL, January 19, appears an article from Dr. Alvin M. Winograd, dealing with a modification in the technic of operation for ingrown toe-nail. The technic described by Dr. Winograd is excellent and I am sure he deserves commendation for his clear-cut description of the operation, as well as for the ingenuity displayed in working out the technic by his own efforts.

Dr. Winograd says, in his article: "It undoubtedly must have suggested itself to others and undoubtedly must have been done before. However, the only reference I can find to similar operations are those in which the whole toe-nail is removed." In this connection, I wish to say that, although I am not a surgeon, I have performed this minor operation in practically the same manner as described by Dr. Winograd in some twenty cases during the last fifteen years. The technic, with illustrations, may be found in "A Text-Book of Minor Surgery," by Dr. Edwin Milton Foote, published by D. Appleton & Co.

After giving detailed instructions for cleansing, the application of the tourniquet, and the injection of the local anesthetic, Dr. Foote says:

Cut through the nail and overlying skin in a line parallel to the axis of the toe. This cut should separate from the nail a strip about one fourth of an inch wide, and should extend clear through the matrix of the nail—a dense white layer easily differentiated from the subcutaneous fat. The overlying skin at this side should be dissected free from this separated marginal strip of nail and from its matrix. This strip of nail and matrix should be dissected out by cuts made above and below it, and meeting well beyond it under the skin at the side of the toe. . . . The skin flaps are retracted and the wound is inspected for any possible bit of matrix which may have been left. It is then well wiped out with an antiseptic solution and closed by the pressure of a wet dressing

wrapped around the toe. . . . The dressing should be changed daily for four days; then if all is well, a dry dessing may be substituted and changed again every three or four days. If the wound heals as it should, it will be quite closed in ten days.

I have used this technic as indicated and have secured uniformly good results in every case. I am very glad to see the author call this to the attention of the profession, as it seems that the method is not in general use. Only a few months ago I described the method to one of the prominent surgeons of this state, who said that he had never heard of it but who has followed the technic in several cases since that time, with good results.

R. C. ELMORE, M.D., Durant, Miss.

BERNARD SHAW AND VACCINATION

To the Editor:—You may be interested in the enclosed correspondence resulting from an excerpt from "Acute Infectious Diseases" by Schamberg and Kolmer, published by Lea and Febiger of Philadelphia, which I sent to Mr. G. Bernard Shaw with the following letter:

JAY F. SCHAMBERG, M.D., Philadelphia.

DR. SCHAMBERG'S LETTER TO G. BERNARD SHAW

Mr. G. Bernard Shaw,
London.

Sir: In a treatise on "Acute Infectious Diseases" by Dr. Kolmer and myself which has just been published in Philadelphia, I have commented as per enclosure upon your attitude on vaccination and its proponents, as expressed in your preface to "The Doctor's Dilemma." The words are perhaps harsh, but in my opinion are fully warranted by your strictures upon a medical procedure which has saved millions of lives.

My conviction is based in part upon twenty-five years' study of the literature, but mainly on a personal experience in the care of 4,000 cases of smallpox and the observation of the behavior of the vaccinated and the unvaccinated in contact with this infection.

I have the honor to remain

Most truly yours,

JAY FRANK SCHAMBERG.

EXCERPT FROM "ACUTE INFECTIOUS DISEASES"

One finds otherwise illustrious men, for instance, Bernard Shaw, ignorantly prating about the efficacy or rather the inefficacy of vaccination. In the preface to the Doctor's Dilemma, Shaw has the temerity to say: "Such monstrosities as vaccination are, as we have seen, founded not on science but on half crowns. If the Vaccination Acts . . . were strengthened by compelling every parent to have his child vaccinated by a public officer, whose salary was completely independent of the number of vaccinations performed by him . . . vaccination would be dead in two years, as the vaccinator would not only not gain by it but would lose credit through the depressing effects on vital statistics of his district, of the illness and death it causes, whilst it would take from him all the credit of that freedom from smallpox which is the result of good sanitary administration and vigilant prevention of infection." This profound ignorance of the subject on the part of one of the best dramatists of the day is incredible. If he meant these statements as entertaining irony then he trifles with human life. If he meant them seriously one must gasp at his self-sufficient audacity. Shaw is a brilliant philosophic satirist but a lamentably bad and, moreover a dangerous, sanitarian. His words are perhaps best to be interpreted as a manifestation of his rebellious spirit against all existing institutions.

MR. G. BERNARD SHAW'S REPLY

Dear Sir, 4, Whitehall Court, London, S.W.1

I think I can beat your twenty-five years' study. I have read up the subject for forty-five years; and I began by reading Jenner, whose works are evidently unknown to you at first hand. Being a vaccinated person I suffered from smallpox in one of the two appalling epidemics which followed the ruthless enforcement of compulsory vaccination in England. Later on, I was a member of a Public Health Committee during the last epidemic which caused any alarm in London, and was an unwilling party to the statistical frauds by which the credit of revaccination (at half a crown per operation) was sustained.

But by that time the control experiment in Leicester and the immense reduction in both the quality and malignancy of smallpox simultaneously with the abolition of compulsory vaccination and the spread of its disuse, had exploded the whole delusion.

Alfred Russell Wallace did not "prefer liberty to science": his case against vaccination was purely statistical and scientific. Spencer also objected to vaccination quite apart from the question of compulsion on the ground that the results of introducing a virus into the circulation were incalculable.

In short, my dear Doctor, your 4,000 cases only prove that clinical experience is not enough, and that as to the rest you are 100 years out of date.

G. BERNARD SHAW.

DR. SCHAMBERG'S REJOINDER

Mr. G. Bernard Shaw,
London.

My Dear Mr. Shaw:

I did not hope to convert you to the cause of vaccination. I did, however, expect you to be more reasonable. There are several statements in your letter which are very wide of the truth and which could be definitely controverted did space permit.

You correct me when I say that Alfred Russell Wallace preferred liberty to science. If you will have the goodness to read his testimony before the Royal Commission on Vaccination, third report, 1890, page 127, you will find that he testified as follows:

I could not wait years to study the question in all of its intricacies and obscurities, while men were being punished as I believe unjustifiably. Liberty is in my mind a far greater and more important thing than science.

You were hasty, Mr. Shaw, in stating that he "did not prefer liberty to science."

You intimate that my experience of 4,000 cases of smallpox does not entitle me to form a judgment as to the preventive efficacy of vaccination, but your attack of smallpox and your reading qualify you as an expert; indeed to such an extent that my attitude on the whole subject is "100 years out of date." Well, if it is, so are all of the Government Commissions that have reported on vaccination, and so are 99½ per cent of all the professors of medicine in the universities of Europe and in America, and so are the sanitary codes of every civilized country in the world; the latter stipulate some form of vaccination obligation for the civil population and compulsory vaccination for the army and navy. Well this brings us back to the oft suggested Shavian thesis:

The world is wrong—only I, I am right.

I have the honor to remain,

Sincerely yours,

JAY FRANK SCHAMBERG.

SEPARATE KIDNEY FUNCTION AND THE IMMISCIBLE BALANCE

To the Editor:—In his paper on "Separate Kidney Function" (THE JOURNAL, January 19, p. 228), Dr. L. C. Todd makes certain statements about determining the specific gravities of urine with the immiscible balance. For the sake of the many who use this method and apparatus I feel in duty bound to point out that Dr. Todd does not follow the method as I gave it in my original publication (Determination of the Specific Gravities of Minimal Amounts of Liquids [Blood, Urine, etc.], Tr. Am. Urol. A. **12**:1920), and that his failure to follow the correct technic occasions unnecessary complications and difficulties which impair accuracy. In reviewing different methods for determining the specific gravity of small quantities of urine, Dr. Todd says:

The third method, the immiscible balance, has proved entirely satisfactory and has the advantage of requiring the smallest amount of urine. Since our use of Exton's immiscible balance, in which purified petroleum benzin and carbon tetrachloride are used as the liquids of widely varying gravities, we have found the use of the immiscible balance method simplified and, in our present judgment, most practical of everyday application. It should be emphasized that with this instrument the insufficient mixing of the two liquids is its chief disadvantage. Thorough mixing may be obtained by stirring vigorously after each addition of either of the two fluids composing the immiscible balance.

Dr. Todd says further:

Then, with the immiscible balance, the gravity is determined by suspending a drop or two of urine in the mixture of varnolene and carbon tetrachloride. When the mixture of the two liquids is such as to suspend

the drop perfectly at any point in the cylinder, the specific gravity of the mixture is taken with a special hydrometer, which is part of this equipment. This represents also the specific gravity of the drop of urine.

The fact of the matter is that the immiscible balance is more sensitive than the hydrometer if its component liquids are mixed under the conditions for which the instrument was designed; i. e., suspend the drop of urine in the middle third of the liquid in the cylinder and not "at any point," as Dr. Todd directs. Then stirring of any kind will be found unnecessary because, if the original technic is carried out, the correct mixtures become homogeneous in the middle zone in less than a minute and thus enable one to avoid the inaccuracies and inconveniences incident to handling forty different mixtures which are impermanent because of the wide differences in vapor pressure of the components.

WILLIAM G. EXTON, M.D., 135 Central Park West, New York City.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FOOD VALUE OF THE PAPAYA

To the Editor:—There is a fruit raised in Florida called the papaya. I would appreciate any information you may have concerning its food values or medicinal properties.

HAROLD D. VAN SCHAICK, M.D., Jacksonville, Fla.

ANSWER.—In the tropics, ripe papaya (*Carica papaya* L) is greatly used as a fruit, particularly for breakfast. The general composition of papaya fruit has been given as follows:

	Per Cent
Water	90.75
Protein	.80
Fat	.10
Fiber	1.09
Nitrogen-free extract	6.32
Ash	.94

The green fruit when fully grown may be cooked similarly to summer squash. A chief food constituent of the product, therefore, according to this analysis, can be seen to be about 6.5 per cent of carbohydrate.

According to a recent article by C. D. Miller (*Biochem. J.* **20**:515, 1926) papaya contains vitamin C in abundance, with a less amount of A and a still smaller amount of B. For many years the juice has been used by the natives for many purposes. Certain proprietary houses have capitalized the use of the dried juice because of the ferment it contains, "papain." Papain has some of the properties of pepsin, but its digestive power is uncertain and feeble. As far as proprietary papaya preparations, which are claimed to contain the active principle, are concerned, the Council on Pharmacy and Chemistry voted as long ago as 1914 not to admit papaya preparations to New and Nonofficial Remedies.

DANGERS OF BRASS IN INDUSTRY

To the Editor:—Does handling brass in industry ever cause bone necrosis? I have an Italian patient, aged 22, who for three years has worked pouring brass into molds. For the past year he has been able to separate his teeth only 1.5 cm. anteriorly. The maxilla is soft, particularly on the left, where there also is an ulcerative loss of bone over an area 3 by 4.5 cm. This is rarely painful but is steadily increasing. The blood Wassermann reaction is negative. There is no evidence of tumor or metastasis, and no evident trouble with the bones elsewhere. Please omit name.

————, Watertown, N. Y.

ANSWER.—Brass is an alloy of zinc and copper in unfixed proportions. These variations give rise to such terms as red brass and yellow brass which, respectively, indicate a high or a low copper content. Lead may be a constituent of brass up to approximately 15 per cent. Much confusion exists as to the interchangeably employed term bronze. A true bronze is an alloy of copper and tin usually in the proportion of 9 to 1. Phosphor-bronze may be spoken of as brass in shop parlance. This alloy contains a predetermined quantity of phosphorus which commonly is added only after the complete heating of the metallic constituents. In addition, all brass and bronze contain small quantities of phosphorus as an impurity. Of this Hayhurst states: "It must not be overlooked that lead, antimony, nickel, aluminum, cadmium, manganese, iron, *phosphorus*, arsenic, and sulphur may enter the *brass crucible*."

In the present instance it becomes highly desirable to determine whether or not phosphor-bronze has been manufactured in the foundry at any time during the three years of employment. If so and under conditions affording any exposure for the workman affected, phosphorus necrosis is a warranted working diagnosis. In the absence of phosphor-bronze work, it still is impossible to exclude "phossy jaw" in the belief that phosphorus as an impurity may be the offender. So low a phosphorus content as 0.76 per cent has been cited as producing "phossy jaw."

If phosphorus poisoning is here present, the patient's jaw may be expected to become (or may be now) much swollen, resistant to all treatment, exquisitely painful and ultimately much deformed. The most helpful differential diagnostic aid is to be found in an unusual degree of thickening of the periosteum of the involved area. This is especially true if the lesion is in the lower jaw. Hamilton states:

> If the lower jaw is the one affected there is an active proliferation of periosteum and formation of callus, at the same time with the necrosis and sloughing, and this gives the jaw a thick swollen look; but in the upper jaw there is little effort at repair, and the dead bone usually comes off in fragments, while in the lower jaw a sequestrum is formed. Fistulae bore their way through from the abscesses, those from the upper jaw usually burrowing their way to the mouth and discharging there, while those from the lower jaw break out on the cheek or neck.

EFFECT OF LONG CONTINUED STORAGE ON DRIED BEANS

To the Editor:—As a matter of curiosity, I should like to know how long such foods as dried beans can be kept and still be fit for human consumption. We unintentionally kept a jar of dried "pinto" beans, which were stored with some household goods, during and after the World War. These were the crop of 1916, and we recently had curiosity enough to see whether they could still be cooked and eaten. The reaction was no different than might be expected from eating a fair amount of any other beans. We should like to know whether these 12-year old beans would be considered as really old, or can such foods be kept for still longer periods? Please omit name.

M.D., California.

ANSWER.—We know of no reason why there should be any loss in food values of dried beans over a long period. Similar products have been recovered in China and elsewhere from storage amounting to many years and found to contain practically all of the nutrient values that were in the original product, including vitamin B, in which beans are fairly rich. Dehydration seems to work considerable havoc with vitamin C, and, unless special precautions are taken to avoid oxidation, dried beans would have very little of this vitamin. The proteins, carbohydrates, fats and minerals would of course be practically unchanged.

EPIDEMIC ENCEPHALITIS

To the Editor:—I have a patient, a man, aged 65, with epidemic encephalitis (1918), who has paralysis agitans of a very severe degree. The violent motion of the tongue and inability to sleep are the most troublesome features. I have used hyoscine hydrobromide orally, from 1/100 to 1/75 grain every four hours, with benefit for a few weeks. Morphine and chloral hydrate produce delirium. Various barbital hypnotics in twice the ordinary dose are ineffective in producing sleep. What would you suggest as a hypnotic? What is usually the ultimate cause of death in these cases?

JOHN W. BULL, M.D., Prospect, Ohio.

ANSWER.—Scopolamine hydrobromide is usually the best remedy in such cases. If it did well for a few weeks taken by mouth it will probably continue to do so if the dosage is increased or if it is given hypodermically. Paraldehyde in doses of 4 to 8 Gm. may be taken at bedtime to induce sleep. This will help to reduce the daily amount of scopolamine and thus lessen the liability to troublesome palsy of accommodation. If necessary the scopolamine may be omitted entirely every fifth or sixth day. The ultimate cause of death in chronic encephalitis is usually some intercurrent infection, but a few patients develop a state of cachexia and die of exhaustion.

The term hyoscine, although originally applied to the substance now known as tropine, was used by Ladenburg for an alkaloid that he obtained from hyoscyamine, which he believed to be isomeric with atropine. It is now generally held that he was mistaken in his statement concerning the composition of this alkaloid and that the substance with which he was dealing was in reality the alkaloid scopolamine, which however, was not discovered until some years later. At present, the terms hyoscine and scopolamine are used interchangeably, while the American and some of the European pharmacopeias give preference to scopolamine because of greater accuracy.

NATURAL GAS AND MUSTARD GAS—BRONCHIECTASIS

To the Editor:—I have recently read that it has been established by authorities on the subject that the effects of the inhalation of mustard gas and of natural gas in process of combustion are virtually the same, and in Warthin and Weller's book on The Medical Aspects of Mustard Gas Poisoning, page 126, there appears this statement: "About 95 per cent of the men gassed with mustard gas showed involvement of the respiratory tract." On page 163 it is stated: "In even the mildest cases there is marked congestion, edema of the lungs, catarrhal bronchitis and localized atelectasis due to bronchial plugging." I can agree with the statement that mustard gas is a severe respiratory irritant, but I am very positive that the action of mustard gas and the action of natural gas, either in its natural state or in process of combustion, is in no way similar to the action of mustard gas. I should appreciate your opinion on this as soon as is conveniently possible. I should also like to know whether there is any authority which states that trauma which does not affect the lung tissue or bronchial tree by tearing injury can produce a bronchiectasis. What is your opinion as to the usual required time for bronchitis to produce a bronchiectasis? M.D., Oklahoma.

ANSWER.—1. Natural gas is a loose term applied to practically any gaseous emission from the earth or pockets of gas that may be detected in excavating or drilling. In a more restricted sense natural gas is applied to natural gases used for combustion. In such gas the common constituents are methane, ethane, propane and butane. Small quantities of a great variety of other substances are usual. Carbon monoxide and hydrogen sulphide are examples of these lesser possible constituents. The major constituents of natural gases are essentially without physiologic action on the body and can cause harm only through oxygen displacement. The actions of carbon monoxide and hydrogen sulphide are well known and are dissimilar to that of mustard gas.

After combustion or incomplete combustion of natural gas, the products to be regarded as toxic are formaldehyde, acrolein, carbon monoxide, traces of ammonia and hydrogen sulphide. In this group formaldehyde, acrolein and ammonia act as irritants on the entire respiratory tract. To that extent their action simulates that of mustard gas. The action of ammonia may be delayed, which again simulates that of mustard gas.

Mustard gas is dichlorethylsulphide ($(CH_2ClCH_2)_2S$). Its lethal dose is approximately 0.05 mg. per liter (7 p.p.m.). This gas (or liquid) acts on the skin, eyes, mucous membranes, entire respiratory tract and systemically, killing ordinarily through action on the central nervous system. Pappenheimer comments on the extraordinary resemblance between the respiratory lesions of influenza and those caused by mustard gas, which extends to the finest histologic detail:

> Mustard gas in sufficient concentration produced a complete necrosis of the epithelium of the larynx, trachea and bronchi. It was the rule for the smallest bronchi to be less severely injured, but yet there were many exceptions to this, and in some cases the necrosis extended into the smallest bronchi, infundibula, and perhaps, although this was more difficult to determine, to the alveolar epithelium itself. The usual gross picture in the early cases was that of a diphtheritic inflammation with the formation of a false membrane, which began at the epiglottis, or even in the pharynx, and extended more or less continuously to the small bronchi. The membrane often was firm and tenacious and lined the upper air passages, forming a cast more or less adherent, or there might be small adherent raised patches covering the eroded and hemorrhagic subepithelial tissue. In a few of the cases the membranous inflammation did not involve the trachea itself, but only the larger and medium sized bronchi.

Marshall states that "the most striking observation regarding the symptoms of dichlorethylsulphide poisoning was the latent period which elapsed after exposure before any serious objective effects were noted. The development of the effects was then quite slow, unless very high superlethal doses had been inhaled." The following is the theory of the action of mustard gas as elaborated by Marshall:

> Dichlorethylsulphide is very slightly soluble in water and very freely soluble in organic solvents, or has a high lipoid solubility or partition coefficient. It would therefore be expected to penetrate cells very readily. Its rapid powers of penetration are practically proven by its effects upon the skin. Having penetrated within the living cell, it would undoubtedly hydrolyze. The liberation of free hydrochloric acid within the cell would produce serious effects and might account for the actions of dichlorethylsulphide. The mechanism of the action of dichlorethylsulphide may be summarized as follows: 1. Rapid penetration of the substance into the cell by virtue of its high lipoid solubility. 2. Hydrolysis by the water within the cell, to form hydrochloric acid and dichlorethylsulphide. 3. The destructive effect of the hydrochloric acid upon some part or mechanism of the cell.

In terms of lethal concentrations, mode of action, and the nature and extent of lesions produced by mustard gas, there is believed to be little in common with the lesions produced by natural gases as such or after complete or partial combustion when the term natural gas is restricted to the fuel gases widely used in this country.

2. Osler stated that fibrosis of lung tissue due to deposits of coal dust may produce bronchiectasis. Bronchiectasis may be a concomitant to silicosis which disease is traumatic in origin, the offending agent being the silica dusts.

3. There is no "usual time" required for bronchitis to produce a bronchiectasis. In children after bronchitis an acute attack of bronchiectasis may supervene, the time from the onset of the bronchitis to a well established stage of bronchiectasis being as short as four weeks. In adults a chronic bronchitis may persist for twenty-five years prior to the development of a bronchiectasis of demonstrable extent.

CONTRAINDICATIONS TO SALYRGAN

To the Editor:—In studying the use of salyrgan in the treatment of edema, I wonder whether it can be used safely in all cases of edema in nephritis and edema from other causes without endangering the life of the patient. Where can this drug be obtained? I have asked several druggists about it, but none of them seem to know anything about it.

R. M. FAVER, M.D., Lake Geneva, Fla.

ANSWER.—Salyrgan is a complex synthetic mercurial which is contraindicated in acute nephritis and in the more severe chronic forms with nitrogen retention in the blood (THE JOURNAL, Dec. 22, 1928, p. 1994). In other cases of edema it may safely be employed in an initial dose of 0.5 cc. of the 10 per cent solution given intramuscularly or intravenously and increased to 1 or 2 cc. if required; injections are made at intervals of from three to five days. The preparation is marketed by H. A. Metz Laboratories, Inc., of New York (122 Hudson Street). Pharmacists should have no difficulty in securing it from the jobbers.

ETHYLHYDROCUPREINE BASE IN PNEUMONIA

To the Editor:—Is optochin base useful in influenzal pneumonia? To what extent has its use in pneumococcic infection been clinically demonstrated as valuable? Please omit name. M.D., Massachusetts.

ANSWER. — Ethylhydrocupreine, introduced as optochin, appears to be a specific agent against the pneumococcus. It is, however, so much less efficient against other micro-organisms that, in an influenzal pneumonia due to any other organism than the pneumococcus, ethylhydrocupreine would not be of any use. Even in pneumococcus infection, one could hardly call ethylhydrocupreine an ideal remedy. To have any effect it must be given in the largest dose tolerated and at the earliest possible moment. Its worst feature is its tendency to produce optic neuritis. To prevent this, the technic has been elaborated of giving ethylhydrocupreine base in doses of 0.25 Gm. (4 grains) with 5 ounces of milk every five hours, day and night for three days. Milk may be given freely between doses but no other food or medication should be given by mouth. This is to prevent as much as possible the formation of soluble hydrochloride and of sudden flooding of the system with an excessive dose of ethylhydrocupreine.

USE OF INSULIN IN MASTKUR

To the Editor:—Please outline the use of insulin in the so-called mastkur, as mentioned by Dr. Hirschboeck in THE JOURNAL, Dec. 15, 1928, p. 1852. A. D. WILSON, M.D., Palm Springs, Calif.

ANSWER.—The use of insulin in the treatment of undernourished patients was first developed by Falga and Bauer and Nyiri. Since that time numerous articles have appeared in the literature. Within the last year a short article has appeared in THE JOURNAL (June 2, 1928, p. 1788) by Appel, Farr and Marshall, on "The Use of Insulin in Undernourished Psychotic Patients." A review of the literature and an excellent summary of the varied experiences are given by Richard Bauer in an article entitled "Insulin Mastkur" (*Klin. Wchnschr.* **7**:1743 [Sept. 9] 1928). The theory of its use is based on the fact that insulin administered to undernourished people with a normal dextrose metabolism develops a moderate insulin reaction, with a reduction in the blood sugar, which, as is well known, is conducive to hunger. The method used by Bauer is as follows:

A simple breakfast is given in the morning, according to the desire of the patient, which may be supplemented by a small luncheon or a glass of milk and cream at 11 o'clock.

At 1:30, 20 units of insulin is injected, and immediately thereafter the noon meal is given, consisting of soup, meat and vegetables, the total carbohydrate content not to exceed from 50 to 60 gm. Bread is not added to this meal.

At 4 o'clock the patient usually experiences a sensation of hunger, and a mild reaction, characterized by slight restlessness and nervousness. The patient is then permitted a meal commen-

surate with the appetite, and in the author's experience it usually comprises about 1,000 calories.

At 8 o'clock the patient is usually able to eat another meal.

A prompt increase in weight, varying in extent, usually follows. If not effective in three or four days, the treatment may be discontinued.

Bauer does not advise its use in exophthalmic goiter but believes it of value in latent tuberculosis. In the emaciation of elderly people it has likewise proved quite ineffective, but its essential value lies in general undernutrition, particularly in patients who have poor nervous and physical stamina, and in the psychoses with a loss of appetite.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 5, 1929. Sec., Dr. Harry C. DeVighne, Territorial Medical Examining Board, Juneau, Alaska.

CALIFORNIA—Reciprocity: San Francisco, March 13, 1929. Sec., Dr. Charles B. Pinkham, Board of Medical Examiners, 420 State Building, Sacramento, Calif.

CONNECTICUT: Hartford, March 12-13, 1929. Sec., Dr. Robert L. Rowley, 79 Elm Street, Hartford, Conn.

CONNECTICUT—Homeopathic: New Haven, March 12, 1929. Sec., Dr. Edwin C. M. Hall, Homeo. Medical Examining Board, New Haven, Conn.

DISTRICT OF COLUMBIA: Washington, April 9, 1929. Sec., Dr. Edgar P. Copeland, Suite 110—1801 Eye Street, Washington, D. C.

IDAHO: Boise, April 2, 1929. Hon. Fred. E. Lukens, Commissioner of Law Enforcement, Medical Examining Board, Boise, Idaho.

ILLINOIS: Chicago, April 9-11, 1929. Supt. of Registration, Mr. V. C. Michels, Dept. of Registration and Education, Springfield, Ill.

MAINE: Portland, March 12-13, 1929. Sec., Dr. Adam P. Leighton, Board of Registration of Medicine, 192 State House, Portland, Me.

MASSACHUSETTS: Boston, March 12-14, 1929. Sec., Dr. Frank M. Vaughan, Board of Registration in Medicine, 144 State House, Boston, Mass.

MINNESOTA—Basic Science: Minneapolis, April 2, 1929. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., University of Minnesota, Minneapolis.

MONTANA: Helena, April 2, 1929. Sec., Dr. S. A. Cooney, State Capitol Building, Helena, Mont.

NEW HAMPSHIRE: Concord, March 14-15, 1929. Sec., Dr. Charles Duncan, State Medical Board, State House, Concord, N. H.

NEW MEXICO: Santa Fe, April 8-9, 1929. Sec., Dr. W. T. Joyner, 20-21 First National Bank Building, Roswell, N. M.

OKLAHOMA: Shawnee, March 12-13, 1929. Sec., Dr. J. M. Byrum, Board of Medical Examiners, Shawnee, Okla.

PHILIPPINE ISLANDS: Manila, March 5, 1929. Sec., Dr. Jose V. Gloria, Board of Medical Examiners, 341 Ronquilla Sta., Cruz, Manila, Philippine Islands.

PORTO RICO: San Juan, March 5, 1929. Sec., Dr. Diego A. Biascoechea, Board of Medical Examiners, 3 Allen Street, San Juan, Porto Rico.

WEST VIRGINIA: Charleston, March 5, 1929. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

Massachusetts July Examination

Dr. Frank M. Vaughan, secretary of the Massachusetts State Board of Registration in Medicine, reports the oral, written and practical examination held at Boston, July 10-12, 1928. The examination covered 17 subjects and included 70 questions. An average of 75 per cent was required to pass. Of the 180 candidates examined, 130, including 15 osteopaths, passed and 50, including 24 osteopaths, failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent
Yale University School of Medicine	(1924)	84.3
State University of Iowa College of Medicine	(1925)	83.8
University of Louisville School of Medicine	(1925)	77.1
Johns Hopkins University School of Medicine	(1928)	91.3
Harvard University Medical School	(1925) 92.4, (1926) 85.2, 87.1, (1927) 81.1, 83.1, 89.7, (1928) 79.6, 83.7, 84.4, 84.5, 84.8, 85.3, 87.7, 88.7, 88.9	79.1,
Boston University School of Medicine	(1927)	76.2, 78.4,
	(1928) 75, 75.2, 75.4, 75.5, 76.4, 77.1, 78.3, 78.7, 79.8, 80.5, 80.9, 81.7, 81.9, 84.1, 87	
College of Physicians and Surgeons,* Boston	(1927)	75.0,
	(1928) 76.2, 81.5, 85.2	
Tufts College Medical School	(1914) 78.5, (1926)	75, 79.3,
	(1927) 75, 75, 75.6, 76.7, 76.9, 80.8, 81.5, (1928) 75, 75, 75.2, 75.8, 77, 77, 77.7, 77.8, 78.7, 78.7, 79, 79.3, 80.2, 80.4, 80.4, 80.5, 80.7, 81, 81.2, 81.2, 81.4, 81.5, 81.7, 81.7, 81.8, 81.9, 82.4, 82.5, 83, 83.2, 83.2, 83.6, 83.9, 84.2, 84.5, 84.8, 84.9, 85, 85.1, 85.2, 85.2, 85.6, 86, 86.1, 86.4, 86.7, 88.7	
Middlesex College of Medicine and Surgery*	(1925)	75.3
	(1928) 75.1, 76.1, 79.2, 81.5	
Kansas City University of Physicians and Surgeons*	(1928)	82.7
Long Island College Hospital	(1926)	86.3
New York Coll. and Hosp. for Women, Homeopathic	(1911)	77.1
Jefferson Medical College of Philadelphia	(1928)	81.7
University of Tennessee College of Med.	(1921) 79.9, (1922)	78.4
University of Vermont College of Medicine	(1925)	76.7
Queen's University Faculty of Medicine	(1928)	85.2
McGill University Faculty of Medicine	(1918)	85.3
University of Montreal Faculty of Med.	(1922) 75.5, (1925)	75.2
Licentiate of the Royal College of Physicians and Surgeons of Glasgow	(1923)	80.4
Osteopaths	75.1, 75.2, 75.2, 75.4, 75.7, 76.8, 78.4, 78.6, 78.7, 79.2, 80.2, 82.1, 84.2, 86.2, 88.3	

FAILED		
College	Year Grad.	Per Cent
College of Physicians and Surgeons, Boston*	(1927)	70.6, 71.7
	(1928) 72.2, 73.2	
Tufts College Medical School	(1928)	73.4
Middlesex College of Medicine and Surgery*	(1923)	62.5, 64.1,
	(1924) 60.1, 61.5, (1926) 65.9, (1928) 60.7, 68.3, 71.6	
Kansas City University of Physicians and Surgeons*	(1926)	65.2
	(1927) 42.8, 47.7, (1928) 50.8, 72.8	
University of West Tennessee Coll. of Med. and Surg.	(1913)	60.0
University of Montreal Faculty of Medicine	(1922)	63.4,
	(1925) 52.4, (1927) 23.1	
Laval University Faculty of Medicine	(1925)	51.2
University of Würzburg, Germany	(1925)†	43.6
National University, Athens	(1917)‡	56.6
University of Naples, Italy	(1923)	71.7
Osteopaths	20.7, 43.7, 55.2, 56.9, 59.6, 60.5, 60.7, 61.3, 61.5, 62.2, 63.7, 63.7, 64.2, 65.3, 66, 66.4, 66.7, 68.1, 69.6, 69.7, 69.9, 70.7, 70.7, 71.5	

Dr. Vaughan also reports one physician licensed by examination as of September 27, and 23 physicians licensed throughout 1928 by endorsement of credentials. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent
Eclectic Medical College	(1881)	82.5

LICENSED BY ENDORSEMENT		
College	Year Grad.	Endorsement with
Yale University School of Medicine	(1925), (1927)	N. B. M. Ex.
Harvard University Medical School	(1924), (1925) (4), (1926) (10), (1927)	N. B. M. Ex.
Boston University School of Medicine	(1926), (1927)	N. B. M. Ex.
University of Michigan Medical School	(1928)	N. B. M. Ex.
University of Pennsylvania School of Medicine	(1926)	N. B. M. Ex.
University of Virginia Department of Medicine	(1927)	N. B. M. Ex.

* After 1928, graduates of this school will be designated as coming from an institution not recognized as a medical college by the American Medical Association.

† A report from the University of Würzburg states that the conferring of this degree was based on incorrect statements and presuppositions, and that the diploma was declared null and void at a meeting of the faculty, held Sept. 15, 1927.

‡ Verification of graduation in process.

Wyoming June Examination

Dr. W. H. Hassed, secretary of the Wyoming State Board of Medical Examiners, reports the written examination held at Cheyenne, June 9, 1928. The examination covered 12 subjects and included 60 questions. An average of 75 per cent was required to pass. One candidate was examined and passed. Three physicians were licensed through reciprocity with other states. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent
Rush Medical College	(1928)	81

LICENSED BY RECIPROCITY		
College	Year Grad.	Reciprocity with
General Medical College, Chicago	(1889)	Utah
University Medical College of Kansas City, Mo.	(1903)	Montana
St. Louis University School of Medicine	(1924)	S. Dakota

Dr. Hassed also reports five physicians, including three osteopaths, licensed through reciprocity with other states as of Oct. 1, 1928. The following colleges were represented:

LICENSED BY RECIPROCITY		
College	Year Grad.	Reciprocity with
Bennett Medical College, Chicago	(1912)	Illinois
University of North Carolina School of Medicine	(1903)	N. Carolina
Osteopaths	(1908), (1924), (1925)	Missouri

Mississippi December Reciprocity Report

Dr. F. J. Underwood, secretary of the Mississippi State Board of Health, reports 12 physicians licensed through reciprocity with other states as of Dec. 11, 1928. The following colleges were represented:

LICENSED BY RECIPROCITY		
College	Year Grad.	Reciprocity with
Rush Medical College	(1928)	Texas
Northwestern University Medical School	(1928)	Illinois
Tulane University of Louisiana School of Medicine	(1924)	Louisiana
University of Bellevue Hospital Medical College	(1924)	New York
Vanderbilt University School of Medicine	(1928)	Tennessee
University of Tennessee College of Med.	(1926), (1927) (3)	Tennessee
Meharry Medical College	(1914), (1927)	Tennessee
Memphis Hospital Medical College	(1911)	Tennessee

Book Notices

DIE TECHNIK DER EINGRIFFE AM GALLENSYSTEM NACH DEN ERFAHRUNGEN DER KLINIK EISELSBERG UND DER CHIRUG. ABT. DES WILHELMINEN-SPITALS. Von Privatdozent Dr. Peter Walzel, Vorstand der chirurgischen Abteilung des Wilhelminen-Spitals in Wien. Mit einem topographisch-anatomischen Teil. Von Dr. Oskar Schumacher, Assistent der I. anatomischen Lehrkanzel der Universität Wien. Paper. Price, 36 marks. Pp. 240, with 108 illustrations. Vienna: Julius Springer, 1928.

This volume represents one of the finest works on biliary tract surgery that has been turned out in a number of years. It is limited entirely to technic. Beginning with the subjects of instruments and anesthesia, the chapters include incisions, explorations, cholecystography, cholecystectomy, choledochotomy, the repair of various types of accidental injury, and other operative procedures, such as cholecystenterostomy. The text is beautifully and intelligently written. A series of colored plates illustrate the surgical anatomy and technic. It is obvious that the author has had an extensive experience with surgery of the biliary tract and has an intelligent understanding of the fundamental principles governing the work.

QUALITATIVE AND VOLUMETRIC ANALYSIS FOR MEDICAL STUDENTS. By H. Lambourne, M.A., M.Sc., F.I.C., Head of the Chemistry Department, the Polytechnic, and J. A. Mitchell, M.Sc., Lecturer in the Chemistry Department, the Polytechnic. Cloth. Price, $1.50. Pp. 64. New York: Oxford University Press, 1928.

In this small volume the authors attempt to cover the fields of qualitative and volumetric analysis as far as medical students are concerned. The qualitative portion of the book reminds one of the textbooks of twenty-five years ago: a cook-book type of recipe for determining this or that metal without causing the student to think in terms of modern chemistry, or to reason why—a most lamentable method of teaching qualitative analysis. The authors then skip gravimetric quantitative analysis, the basis of all quantitative work, and present immediately volumetric analysis. It is fortunate for the future physicians of America that chemistry in the colleges here is taught by the use of textbooks using the modern explanations of chemistry to stimulate thinking on the part of the student.

A SHORT COURSE ON HUMAN OSTEOLOGY. By M. R. Drennan, M.A., M.B., Ch.B., Professor of Anatomy in the University of Cape Town. Cloth. Price, 7/6. Pp. 99. Cape Town: The Mercantile Press, 1928.

This is a brief statement of the main facts of human osteology published for medical students to use when the standard textbooks are not accessible and when preparing for examinations in osteology. It is a good summary, though it contains neither figures nor index. The one historical reference in it errs in attributing to John Hunter work done first by Hales and Duhamel.

L'URÉE (RECHERCHES DE CHIMIE ANALYTIQUE, BIOLOGIQUE ET AGRICOLE). Les fonctions dinaphtopyranol, xanthydrol et sel de pyryle (chimie organique). Par Richard Fosse, professeur de chimie organique à la Faculté des sciences de Lille. Boards. Pp. 303. Paris: Les Presses Universitaires de France, 1928.

Urea, empirically one of the simplest bodies encountered in biochemical work, has not been without its chemical difficulties. Even the formula has its "chain" adherents and its "cyclic" adherents. The very elemental simplicity of the product has been a barrier in readily tracing the genesis and chemical composition of urea in the body. Much of this difficulty has been due to the solubility of the product in water and to the few insoluble compounds that urea forms. In 1899, Professor Fosse discovered that urea combined with xanthydrol to form an insoluble body which served well for the isolation and estimation of urea in amounts as little as one millionth of a gram. During the past three decades, Professor Fosse and his co-workers have applied the reaction to a number of biologic and organic systems in which urea may be a product. The present volume is a summary of these studies, which have appeared in the *Comptes rendus* of the Academy of Sciences. The identification of urea in chlorophyllic plants has been an even greater stumbling block than its exact determination in animals. Phytochemists and phytophysiologists will welcome the convincing evidence Fosse has brought forward in this volume to show the presence of urea in the vegetable kingdom, as a product of normal metabolism. The identification of such a simple body in both the vegetable and the animal kingdom is not without its significance; for, while the past four decades has witnessed remarkable strides in all branches of biochemistry, the emphasis has been placed on zoochemistry, much to the detriment of phytochemistry. This has given rise in many minds to the belief that biochemistry is predominantly a chemistry of the animal body rather than the chemistry of all living matter. The identification of urea as a product common to vegetable and animal life adds but another thought to the growing appreciation that the true sphere of biochemistry is the chemistry of all living matter, whether it is of animal or of plant origin. This monograph will be found valuable for those engaged in physiologic problems of nitrogen metabolism and interesting to the general reader in showing the application of this delicate test in the elucidation of the biochemistry of urea.

FUNDAMENTALS OF CHEMISTRY. A Text-Book for Nurses and Other Students of Applied Chemistry. By L. Jean Bogert, Ph.D., Instructor in the Department of Medicine, University of Chicago. Second edition. Cloth. Price, $2.75 net. Pp. 345, with 19 illustrations. Philadelphia: W. B. Saunders Company, 1928.

The aim of the author, it appears, has been to crowd into a little more than 300 pages that chemical information useful in the study of nursing. The book is divided into two parts: chemical theories and inorganic chemistry, and organic and physiologic theories. The first part is presented in the conventional manner except that the elements of the ever changing electron theory are substituted for the periodic system, the value of which in correlating large amounts of chemical information has been amply illustrated. While the electron theory is of prime importance in correlating chemical properties, the inclusion of this matter in a volume intended as a brief course for a group of specialists is somewhat doubtful. The second half of the book covers enough of the conventional matter of organic chemistry for an understanding of the subsequent general discussion of physiologic chemistry that might prove interesting and useful to students of nursing. Because of the wide range of material included in the book, the discussion is necessarily fragmentary. With the exception noted, the author has judiciously chosen her subject matter and has presented it interestingly. The text should prove useful in the field for which it was prepared. The book is well printed on paper of good quality, and the value is enhanced by striking illustrations in the second part of the book.

ÉLÉMENTS D'HISTOLOGIE. I: Cellule. Division cellulaire. Différenciation cellulaire. Classification morphologique et fonctionelle des cellules, tissus et organes. Éléments de soutien, contractiles, nutritifs. Sang, lymphe, organes hématopoietiques, vaisseaux sanguins et lymphatiques. Par P. Bouin, professeur à la Faculté de médecine de Strasbourg. Cloth. Price, 120 francs. Pp. 334, with 202 illustrations. Paris: Félix Alcan, 1929.

This is the first of two volumes constituting an introduction to the study of histology. This volume deals with cytology and a few tissues of the animal body; namely, supporting structures, contractile structures, the elements of blood and lymph, and the vessels that carry them. The method of treatment is functional, and throughout the book the plan of studying tissues rather than organs is followed. The fundamental principles of biology are developed as they present themselves in each tissue. As the book is intended to be introductory, only the general and well established principles are considered. At the end of each section is a brief summary which is clear and valuable. The section on the physical chemistry of cells, which is missing from many textbooks on histology but which must constitute one of the most interesting and necessary parts of its study, has been contributed by Professor Vlès. There are many excellent microscopic photographs and new drawings. Many of these drawings and two full page plates have been made by Collinet. An excellent bibliography, including publications of 1926 and 1927, is added at the end of each section for those who wish to go on to a more thorough study. The author has long been known as one of the foremost scientific histologists. This book is evidence that he is also a capable teacher. Students who are led into the study of this fundamental and fascinating subject by him will find the experience interesting. Their curosity will be stimulated. They will develop an understanding of the principles of biology, and they will see inviting pathways toward further research.

MUNICIPAL AND RURAL SANITATION. By Victor M. Ehlers, C.E., Chief Sanitary Engineer, State Health Department of Texas, and Ernest W. Steel, C.E., Professor of Municipal and Sanitary Engineering, Agricultural and Mechanical College of Texas. Cloth. Price, $4. Pp. 448, with 119 illustrations. New York: McGraw-Hill Book Company, Inc., 1927.

This volume is intended primarily as a textbook for courses in sanitation for engineers. The various subjects usually treated in a book of this character are discussed. These include water supplies and water purification, disposal of excreta, insect control, plumbing, ventilation, housing, milk sanitation, and control of communicable disease. Descriptions of engineering factors involved in public health problems are adequately handled, but the material involving knowledge of bacteriology and particularly recent applications to public health work is not written in a way to appeal to the public health worker. The section on vital statistics is too brief to be of any value.

THREE LECTURES ON NEUROBIOTAXIS AND OTHER SUBJECTS, DELIVERED AT THE UNIVERSITY OF COPENHAGEN. By C. U. Ariëns Kappers. Paper. Pp. 76. Copenhagen: Levin & Munksgaard, 1928.

These already well known lectures delivered at the University of Copenhagen are, fortunately, published in English. In the first lecture Kappers describes with characteristic lucidity and brevity the meaning of neurobiotaxis. Comparing the association of mental images seen and heard, he shows how simultaneous stimulation of sensory cutaneous zones leads to structural connections. He continues the illustration with examples of structural change as related to taste and hearing. He points out the neurobiotaxic basis for the teleologic character of the intrinsic structure of the brain. In the second lecture the phylogenic and ontogenic development and functions of the corpus striatum are discussed, and in the third the development of the cortex and the functions of its different layers are described. Here, as before, the phylogenic development of the paleocortex and archicortex is shown to be dependent on neurobiotaxis. Within the seventy-six short pages of this monograph is encompassed so much food for thought that no physician should fail to read it.

PRACTICAL BACTERIOLOGY. An Introduction to Bacteriological Technic. By Fred W. Tanner, Ph.D., Professor of Bacteriology and Head of the Department, University of Illinois. Cloth. Price, $2.50 net. Pp. 235, with illustrations. New York: John Wiley & Sons, Inc., 1928.

During the past few years a number of laboratory guides for the teaching of elementary bacteriology have appeared. Tanner's book is the latest of these. Rather complete and detailed discussions are given for elementary bacteriologic work. The book contains a suggested plan of work which the teacher is at liberty to vary; indeed, he can easily adapt the manual to a variety of needs on the part of students. Directions for the various procedures are accurately and precisely given and a reasonable amount of explanation is included.

MANUAL OF HYGIENE AND PUBLIC HEALTH. A Text-Book for Medical and Public Health Students. By Jahar Lal Das, D.P.H., Offg. Asst. Director of Public Health, Bihar & Orissa. With an introduction by Lieut.-Colonel W. C. Ross, M.B., Ch.B., D.P.H., Director of Public Health, Bihar and Orissa. Second edition. Cloth. Price, 6/- net. Pp. 661, with 105 illustrations. London: Butterworth & Co., 1928.

This edition is almost identical with the first, published in 1925. Additions have been made to the appendix to include selected sections from such legislation as the Epidemic Disease Act, the Indian Factory Act and the Birth and Death Registration Act. A brief explanation of methods of disinfection is also added as an appendix and a table for identification of various species of anopheline mosquito.

QUALITATIVE ANALYSIS FOR STUDENTS OF PHARMACY AND MEDICINE. By Charles B. Jordan, Ph.C., M.S., Dean of School of Pharmacy and Professor of Pharmaceutical Chemistry, Purdue University. Cloth. Price, $2.50. Pp. 169. New York: McGraw-Hill Book Company, Inc., 1928.

An excellent concise laboratory manual on qualitative, chiefly inorganic, analysis, especially designed for students of pharmacy and medicine with a view most especially of furnishing a basis for the understanding of incompatabilities, the mode of action of antidotes, and the qualitative tests employed in medicolegal procedure. One notices with pleasure that it endeavors to acquaint the student with some of the more modern concepts in chemistry, so much neglected in many similar books still in use.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

TUMORS ARISING FROM THE BLOOD VESSELS OF THE BRAIN: ANGIOMATOUS MALFORMATIONS AND HEMANGIOBLASTOMAS. By Harvey Cushing, Professor of Surgery, Harvard Medical School, and Percival Bailey, Associate Professor of Surgery (Elect), University of Chicago. Cloth. Price, $7.50. Pp. 219, with 159 illustrations. Springfield: Charles C. Thomas, 1928.

A beautiful monograph by master workers in the study of tumors of the brain and its accessories.

SOZIALHYGIENE IM SÄUGLINGS- UND KLEINKINDESALTER. Von Eugen Stransky, Assistent der Reichsanstalt für Mutter- und Säuglingsfürsorge in Wien. Mit einem Vorwort von Hofrat Prof. Dr. Leopold Moll, Direktor der Reichsanstalt für Mutter- und Säuglingsfürsorge in Wien. Paper. Price, 8 marks. Pp. 129, with 6 illustrations. Vienna: Franz Deuticke, 1929.

Small monograph on various organized schemes for the care of the child.

DIE KLINISCHE RÖNTGENDIAGNOSTIK DER INNEREN ERKRANKUNGEN. II Hälfte. Von Dr. Herbert Assmann, ord. Professor der speziellen Pathologie und Therapie, Direktor der medizinischen Poliklinik in Leipzig. Fourth edition. Paper. Price, 35 marks. Pp. 513-1071, with 569 illustrations. Leipzig: F. C. W. Vogel, 1928.

Second volume of the fourth edition of Assmann's monumental guide to roentgenology.

DEGENERATION AND REGENERATION OF THE NERVOUS SYSTEM. By S. Ramón y Cajal, M.D., F.R.S., Director of the Instituto Cajal, Madrid. Volume I and Volume II. Translated and edited by Raoul M. Day, Ph.D., D.ès Sc. Cloth. Price, $18 per set. Pp. 769, with 317 illustrations. New York: Oxford University Press, 1928.

An English translation of this classic work.

THE COMPARATIVE PHYSIOLOGY OF MUSCULAR TISSUE. By A. D. Ritchie, M.A., Lecturer in Chemical Physiology in the Victoria University of Manchester. Cloth. Price, $3. Pp. 111. New York: Macmillan Company, 1928.

Technical lectures on the newer discoveries in the field of physiology of muscles.

THE SACK-'EM-UP MEN. An Account of the Rise and Fall of the Modern Resurrectionists. By James Moores Ball, M.D., LL.D. Cloth. Price, 16/- net. Pp. 216, with illustrations. Edinburgh: Oliver & Boyd, 1928.

Fascinating historical account of a romantic period in the development of the study of human anatomy.

COMMUNICABLE DISEASES: For Nurses and Mothers. By Albert G. Bower, M.D., and Edith B. Pilant, R.N. With foreword by Elizabeth F. Miller, R.N. Cloth. Price, $3 net. Pp. 327, with 34 illustrations. Philadelphia: W. B. Saunders Company, 1929.

Actually a good home guide on infectious diseases.

DIE REIZKÖRPERBEHANDLUNG DES DIABETES. Von Prof. Dr. Gustav Singer, Hofrat, Primararzt der Krankenanstalt „Rudolfstiftung", Wien. Paper. Price, 15 marks. Pp. 200, with 40 illustrations. Berlin: Urban & Schwarzenberg, 1929.

On the treatment of diabetes by modern methods.

PEDIATRICS FOR THE GENERAL PRACTITIONER. By Harry Monroe McClanahan, A.M., M.D. Cloth. Price, $6. Pp. 606, with 230 illustrations. Philadelphia: J. B. Lippincott Company, 1929.

A common sense consideration of the care of the infant, with good scientific background.

STUDIES ON OXIDATION-REDUCTION. XIII. Preparation of Indophenols Which May Be Used as Oxidation-Reduction Indicators. By H. D. Gibbs, Senior Chemist, W. L. Hall, Assistant Chemist, and W. M. Clark, Chief of Division of Chemistry, Hygienic Laboratory, United States Public Health Service. Supplement No. 69 to the Public Health Reports. Paper. Price, 10 cents. Pp. 35. Washington, D. C.: Supt. of Doc., Government Printing Office, 1928.

DIE SEUCHEN IM SEEVERKEHR: EPIDEMIOLOGISCHE BETRACHTUNGEN. Von Dr. med. Hanns Gleitsmann, Marinegeneralarzt a. D. und ehemaligem Flottenarzt. Der Schlussband: Was kann die Epidemiologie aus dem Seuchenverhalten auf den Schiffen lernen? Paper. Price, 3 marks. Pp. 40. Munich: J. F. Lehmann, 1928.

IMMUNISATION LOCALE CONTRE LA TUBERCULOSE PAR VOIE CUTANÉE. Par J. Dekker. Préface de A. Besredka, professeur à l'Institut Pasteur. Paper. Price, 7/6. Pp. 108, with illustrations. Amsterdam: H. J. Paris, 1928.

Medicolegal

Lessor's Lien for Advances for Medical Services

(Moak v. Moak (Miss.), 116 So. 286)

A Mississippi statute provides that every lessor of land shall have a lien on the agricultural products of the leased premises to secure, among other things, the payment of all advances made by him to his tenant for supplies. The lessor in this case paid a physician for attending members of a tenant's family and instituted this suit to recover for such payments. The circuit court gave judgment for the lessor, and the tenant appealed to the supreme court of Mississippi. The lessor had a general arrangement with a physician to render services to all his tenants and to charge such services to the lessor. It was admitted that the physician rendered the services in this case. The tenant contended, however, that the landlord's claim did not come within the purview of the statute creating the lien, because the landlord himself did not furnish the supplies but merely guaranteed "payment for supplies furnished by another." The supreme court said it was clear from the evidence that the landlord did not merely guarantee payment but promised to pay for the services himself. The advances were made by the landlord to the tenant through a third person, and such advances, the court held, were secured by the statutory lien. The tenant further contended that medical services rendered a tenant and his family were not "advances" made to a tenant, within the meaning of the statute. The court, without attempting to define the term "advances for supplies," held that it could be safely said that it embraced everything of value for the use, sustenance or well being of the tenant or his family. Good health on the part of a tenant and members of his family is necessary, the court said, for the proper carrying on of the work which the tenant's lease contemplates he shall do, and for the attainment of health the services of a physician are always proper and sometimes necessary. The court therefore held that the supplying of such services came within the provisions of the statute, and the judgment of the circuit court was affirmed.

Privileged Communications and the Federal Employers' Liability Act

(Yazoo & M. V. R. Co. v. Decker (Miss.), 116 S. 287)

This suit was instituted by the administratrix of the estate of one Decker, to recover damages for his death. The deceased, an employee of the appellant, was alleged to have died as a result of a fall from a car of the appellant, in the discharge of his duty, caused by the defective equipment of the car. The cause was submitted to the jury, under instructions from the court. There was a verdict and judgment in favor of the plaintiff for $30,000, and the defendant appealed to the supreme court of Mississippi, division A. As one of the grounds for its appeal, the appellant contended that the court erred in excluding the testimony of a physician, to the effect that whisky was contained in a bottle taken from the body of the deceased and that in his opinion the deceased died from acute dilatation of the heart. This physician was called to attend the deceased and began to examine him, but the patient died two or three minutes later. His testimony was objected to on the ground that it was privileged, and the trial court sustained the objection. On behalf of the appellant it was contended that the Mississippi privileged communications statute has no application to a case under the Federal Employers' Liability Act, where the effect of enforcing the statute would be to prevent the defendant from introducing proof on the main point in the issue, and that the construction and application placed by the court below on the Mississippi privileged communications statute rendered it unconstitutional, because in violation of the fourteenth amendment of the federal constitution. The statute provides that all communications made to a physician or surgeon by a patient under his charge or by one seeking professional advice shall be privileged, and such physician or surgeon shall not be required to disclose the same in any legal proceeding, except at the instance of the patient. It was argued that the statute, as applied to this case, had the effect of being more than a rule of evidence; that it was a rule of substantive law, and that it denied the appellant a substantial right, in that it prevented the appellant from introducing proof on the main point at issue. The supreme court, however, held to the contrary, citing its decision in the case of *N. O. & N. E. Railroad Company* v. *Jackson*, 145 Miss. 702, 110 S. 586. For this and other reasons, the judgment of the court below was affirmed as to the liability of the appellant, but reversed and remanded so far as it awarded damages, for trial on the question of damages only.

"Wound" Defined

(Harris v. Commonwealth (Va.), 142 S. E. 354)

The appellant was charged under the Maiming Act of Virginia with feloniously wounding one Collins. He was convicted and thereupon appealed to the supreme court of appeals of Virginia. The evidence showed that the injury inflicted was a bruise and that the skin was not broken. Such an injury, the appellant contended, does not constitute a wounding within the meaning of the act under which he was charged. The act makes it unlawful for any one to shoot, stab, cut or wound any person, or by any means cause him bodily injury, with intent to maim, disfigure, disable or kill him. It is closely modeled after the English statute, which provides appropriate penalties for any one who stabs, cuts or wounds any person with intent to maim, disfigure or disable him, or do other grievous bodily harm. The English act was construed at an early date to mean that there must be a breaking of the skin. That construction of the statute seems to have been universally followed. The trial court in the present case erroneously refused to instruct the jury that unless they believed beyond a reasonable doubt that the injury suffered by Collins from the blow caused the absolute parting and breaking of the skin, they could not find the accused guilty. For this reason, among others, the judgment of the trial court was reversed and the case remanded.

Harboring Criminals

(Nadel v. State (Ohio), 161 N. E. 296)

The case cited has no immediate medical bearings. The principles involved, however, are of medical interest as they throw light on the duty of a physician called on to treat a person guilty of a felony. Nadel was convicted under an indictment charging him with harboring a felon. He appealed to the court of appeals of Ohio, Cuyahoga County. It was argued that there was nothing in the record to show that he had "harbored a felon." The appellate court held, however, that if a felony had been committed and Nadel knew of that felony, and if he lent aid to keep the guilty party secreted by lending him money or acting as a go-between, he was guilty of harboring a felon within the meaning of the statute. The judgment of the court below was affirmed.

Admissibility of Dying Declarations

(Commonwealth v. Green (Pa.) 141 A. 624)

Green was convicted of murder in the second degree and appealed to the supreme court of Pennsylvania. It was alleged that his victim was found with a bullet wound in the abdomen, which proved fatal nine days later. The commonwealth's case rested chiefly on a dying declaration made by the deceased. The appellant, when this written statement was offered in evidence by the commonwealth and admitted by the court below as a dying declaration, questioned its admissibility. One Anderson, a detective, testified that the written declaration was dictated by the deceased, taken down by him, certified by a notary, and witnessed by another police officer, Gentila, who subscribed his name to it. The notary public did not take the witness stand. The police officer Gentila, who was said to have subscribed to the dying declaration as a witness, testified for the commonwealth but was not questioned by either side concerning the dying declaration. Anderson testified that the physician in charge of the deceased told her that she would die and that she replied, "I know I am going to die." Objection to the admission of the declaration was based on the fact that the notary public was not present to testify. It was contended on appeal that the statement, being in writing and subscribed to by the notary and witnessed by the police officer, Gentila, should not have been accepted in evidence until both of these subscribing witnesses had taken the witness stand and identified the document. While it is proper practice, said the appel-

late court, where a dying declaration is offered in evidence in a murder case, to place on the stand all of those who were present at the time the declaration was made, whether subscribing witnesses or not, yet there is no rule of law which requires this to be done. Failure to follow the course indicated could not be regarded as a reversible error in a case like the one before the court, where the written declaration coincides with, and does not in any material degree supplement, previous oral statements made by the deceased, which were testified to, without objection on the part of the defendant, before the offer of the written document. The record shows, too, that after the written declaration had been formally offered, but before it was shown to the jury, counsel for the defendant, who later objected to its admission, had the witness who produced the writing read it to the jury. Moreover, the objection made by counsel for the defendant to the introduction of the written declaration was not that all those present at the signing of the writing should be called to the stand, or even that the subscribing witnesses had to be called to identify the writing, but was simply that the notary public who officially certified to the document was not in court to testify. The appellate court was not convinced of any reversible error in connection with the acceptance in evidence of the written declaration.

Failure to Use Roentgen Rays

(Taylor v. De Vaughn (Calif.), 266 P. 960)

The plaintiff recovered judgment against the defendant on account of the defendant's alleged malpractice. The defendant thereupon appealed to the district court of appeal, second district, division 2, California. The plaintiff, a boy a little less than 8 years old, fractured his left femur in its middle third. The defendant made roentgenograms of the limb, reduced the fracture, and applied splints, a plaster-of-paris cast and extension of the limb with weights. He exercised reasonable care and skill in so doing. An effort was made to have the patient lie on his back, but three days after the fracture was reduced, he turned over. Soon thereafter, the patient's mother asked the defendant to have roentgenograms made to determine whether the ends of the broken bone had lost their apposition, but the defendant said that it was not necessary to do so. Eight days after the limb was set, the defendant consented to the removal of the patient from the hospital. The patient was taken to his mother's home and later moved to another private home, where he was kept in bed with weights attached to his limb. The defendant did not give the patient's mother instructions as to his care. In the process of moving, the patient was carried in arms several times. After the boy was taken from the hospital the mother reported that he suffered cramps in his injured limb. On the thirteenth day after the fracture was set, the defendant examined the boy. He was asked by the mother to have roentgenograms made, but he said that it was not necessary. Two days later he did have roentgenograms made. They showed that the ends of the broken bone were misplaced and had slipped past each other, shortening the leg about 2½ inches. On the nineteenth day after the fracture was set, another surgeon, employed by the mother, operated. He found a very firm callus over the ends of the bone, connecting the broken ends. The character of the callus indicated that it had required from two to four weeks for its formation.

On behalf of the defendant it was testified that he measured both legs shortly after the patient had turned over and found them the same length, the foot in proper position, and the injured limb straight, and that thereafter, the patient, while in the hospital, suffered but little pain. The defendant testified that he refrained from taking roentgenograms after he reduced the fracture, for fear of injury to the boy. Other surgeons testified that such measurement of the limbs is not a sufficient guide to determine whether there has been a slipping or side movement of the ends of the broken bone; that the only sure way to determine whether a fracture has been properly reduced is by means of roentgenograms; that that is the general practice among skilful physicians in the community where the occurrences complained of took place, and that when roentgen rays are properly used for that purpose there is no danger to the patient. It was testified also that the splints and casts originally put on the limb would not have prevented movement of the limb or a slipping of the ends of the broken bone.

One of the main questions for determination, said the court of appeal, is whether the relation of surgeon and patient existed between the defendant and the plaintiff when, subsequent to the reduction of the fracture, the broken ends of the bone lost their apposition, or for any period thereafter. On this point, the court quoted with approval from the opinion in *Hopkins* v. *Heller,* 59 Calif. App. 447, 452, 210 P. 975, as follows:

> When the physician takes charge of a case and is employed to attend a patient, his employment, as well as the relation of physician and patient, continues until ended by the consent of the parties, or revoked by the dismissal of the physician, or until his services are no longer needed. For example, when a surgeon performs an operation, not only must he use reasonable and ordinary care and skill in its performance, but also in the subsequent treatment of the case. It is his duty to give the patient such attention after the operation as the necessity of the case demands, in the absence of any special agreement limiting the service or reasonable notice to the patient.

On the authority of this and other cases cited by the court, it was held that the relation of surgeon and patient existed between the defendant and the plaintiff in this case until two or three days before the operation by the second surgeon, at which callus was found that was from fourteen to thirty days old, and it appeared that the ends of the bone had lost their apposition at least ten days before the defendant was discharged from the case. The trial court had found that the defendant was negligent and failed to exercise reasonable skill in the following particulars: He failed to take roentgenograms to ascertain whether the fracture had been properly reduced, or after the patient turned over, or after the patient was moved, to determine whether any injury had been done by the turning or moving; he failed to give instructions to lessen the danger of displacing the fractured bone by the moving of the boy from the hospital; he failed to give the boy his personal attention between the moving and his visit to the boy five days later; and he did not have such pictures taken until repeated demands and requests had been made by the mother for them, and not by reason of correct or reasonably careful diagnosis. The appellate court held that the findings of the trial court were amply supported in the evidence, that the defendant was remiss in his duty, and that there was substantial evidence to sustain the view that the operation performed by the second surgeon would not have been necessary if the defendant had exercised that degree of care and skill ordinarily used by surgeons in the community. The judgment of the trial court was affirmed.

Camphorated Oil Not a Patent Medicine

(Board of Pharmacy of New Jersey v. Abramoff (N. J.), 141 A. 587)

The appellant, Abramoff, appealed to the supreme court of New Jersey from a judgment entered by the district court in favor of the Board of Pharmacy of the State of New Jersey, in a penal action for an alleged violation of the Pharmacy Act. He, a grocer or ordinary tradesman, undertook to sell a small bottle of camphorated oil, corked and sealed, and bearing the imprint of a legally licensed druggist. On appeal, he argued among other things that section 9 of the Pharmacy Act provides that nothing therein shall be construed to cover the making and vending of nonpoisonous patent or proprietary medicines. But, said the court, camphorated oil is neither a patent medicine nor a proprietary medicine. Consequently, a complete case of a violation of the act, not within the exceptions embodied in section 9, was made out. The appeal was therefore dismissed.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Mobile, April 16-19. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association for the Study of Goiter, Dayton, Ohio, March 25-27. Dr. K. W. Kinard, Bryant Building, Kansas City, Mo., Secretary.

American Association of Anatomists, Rochester, New York, March 28-30. Dr. Lewis H. Weed, Johns Hopkins Medical School, Baltimore, Sec'y.

American Association of Pathologists and Bacteriologists, Chicago, March 28-29. Dr. H. T. Karsner, 2109 Adelbert Road, Cleveland, Secretary.

American College of Physicians, Boston, April 8-12. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Secretary.

Louisiana State Medical Society, New Orleans, April 9-11. Dr. P. T. Talbot, 1551 Canal Street, New Orleans, Secretary.

Tennessee State Medical Association, Jackson, April 9-11. Dr. H. H. Shoulders, Lambuth Building, Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association librar, lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

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*Peptic Ulcer of Esophagus. J. Friedenwald, M. Feldman and W. F. Zinn, Baltimore.—p. 1.
*Clinical and Laboratory Findings in Gastric and Duodenal Ulcer: Roentgenologic Data. T. G. Miller, E. P. Pendergrass and K. S. Andrews, Philadelphia.—p. 15.
*Late Results of Surgical Treatment of Peptic Ulcer. M. Fremont-Smith and M. A. McIver, Boston.—p. 33.
*Comparison of Late Results of Ambulatory and Hospital Treatment of Peptic Ulcer. J. M. Blackford and J. M. Bowers, Seattle.—p. 51.
*Effect of Smaller Doses of Histamine in Stimulating Human Gastric Secretion. L. M. Gompertz and W. Cohen, New Haven, Conn.—p. 59.
*Peptic Ulcer: VI. Gastroduodenal Analysis. C. B. Morton, University, Va.—p. 65.
Extent in Variations in Leukocytes of Normal Individuals. E. M. Medlar, Mount McGregor, N. Y.—p. 72.
*Marked Monocytosis Accompanied by Neutrophilic Leukopenia Following Antisyphilitic Treatment. C. P. Wilson, Nashville, Tenn.—p. 88.
*Adenoma of Islands of Langerhans with Associated Hypoglycemia. W. U. McClenahan and G. W. Norris, Philadelphia.—p. 93.
Thyrotoxicosis from Internist's Standpoint. J. L. Miller, Chicago.—p. 98.
*Simplified Method of Gastric Analysis. G. Cheney, San Francisco.—p. 110.
Clinically Primary Tuberculous Pericarditis: Two Cases. J. A. Clarke, Jr., Philadelphia.—p. 115.

Peptic Ulcer of Esophagus.—Thirteen cases of peptic ulcer of the esophagus are reviewed by Friedenwald et al. The prominent symptoms of this disease are pain, dysphagia, vomiting, hemorrhage and perforation. Pain occurred in 84 per cent of the cases; dysphagia occurred in all of the cases; vomiting was observed in 54 per cent, and hemorrhage in 23 per cent; perforation did not occur in any case. The diagnosis is usually difficult. Fluoroscopy and esophagoscopy may be of considerable aid in diagnosis. The fluoroscopic examination is the method of choice. While the course of the disease is frequently rapid, it may progress slowly with periods of remission and, as a result of the healing of the ulcer, stricture may occur. The onset, however, is usually gradual, beginning with dyspepsia and finally with pain and dysphagia. In other instances, the ulcer remains latent until hemorrhage or perforation occurs. The duration in the authors' cases ranged between ten days and eight years. As focal infections are known to have an important rôle in the etiology of peptic ulcerations, all foci of infection should, as far as possible, be eradicated. The treatment of uncomplicated peptic ulceration of the esophagus is mainly dietetic. An attempt should be made as far as possible to prevent further irritation and to maintain rest. Milk as the special form of diet is of the utmost importance. If healing does not occur gastrostomy should be performed. Of the thirteen cases in this series, satisfactory relief was obtained in eight by means of dietetic and medical treatment. In three cases the local application of a 10 per cent solution of silver nitrate in addition to the other treatment accomplished the desired result. One patient remained unimproved and one died of perforation followed by pneumonia.

Roentgenologic Data in Gastric and Duodenal Ulcer.—The clinical and laboratory data in 279 operatively proved cases of gastric and duodenal ulcer are analyzed by Miller et al. The cases of duodenal ulcer outnumbered those of gastric ulcer in the ratio of 4 to 1, and it is pointed out that for all of these presenting symptoms the duodenal preponderance is even greater. The male sex predominated in each group (from 85 to 90 per cent), and the women were on the average a little older than the men. Aside from the roentgenologic observations, the history was of the greatest diagnostic importance and sometimes afforded evidence suggesting the gastric or duodenal localization of the lesion. The physical examination was of less diagnostic importance, although a small spot of epigastric tenderness was found in almost half the cases and was regarded as of confirmatory value. Both groups showed a tendency to high gastric acidity, more marked in those with duodenal ulcer, but it is emphasized that such high acidity may occur in persons free from all evidence of disease and so in itself cannot be accepted as evidence of ulcer. The roentgenologic observations are summarized as follows: (1) the roentgenologic diagnosis was correct in 94 per cent of the gastric and 88 per cent of the duodenal ulcers; (2) the most important roentgenologic diagnostic sign was the filling defect; (3) in twenty-three cases that were diagnosed pyloric stenosis, gastroduodenal ulcer or pyloric obstruction, only six ulcers seemed to be pyloric in origin, the others being distinctly duodenal, and (4) healed ulcers show filling defects similar to those of adhesions or ulcer, but do not have the associated suggestive fluoroscopic phenomena.

Late Results of Surgical Treatment of Peptic Ulcer.—Fremont-Smith and McIver analyze 678 cases, grouped as follows: 398 duodenal ulcers and 261 gastric ulcers with twenty-four gastric and duodenal ulcers in the same patient. In 472 of these cases information was obtained as to the condition two or more years after operation. About 11 per cent of the patients with duodenal ulcer showed a severe recurrence of symptoms by the end of two years; fourteen at four years; nineteen at six years; fifteen at eight years, and fourteen at ten years. The figures for those with gastric ulcer were about the same, except that the percentage of recurrences in the eight to ten year groups was somewhat higher—19.5 and 17.6, respectively. Exclusive of the cases of acute perforation, the operative mortality was 6 per cent in the cases of duodenal ulcer and 9 per cent in the cases of gastric ulcer. Section II deals with acute perforations and multiple operations. Twenty-four of the patients with duodenal ulcer and fifteen of those with gastric ulcer gave a history of acute perforation. The average duration of symptoms before the perforation was about eight years, but there were a few in whom the perforation occurred with brief, if any, previous symptoms. In the gastric group all such cases occurred in young persons, whereas in the duodenal group half were in middle-aged or elderly persons. The immediate mortality was 18.7 per cent. Of the forty-nine patients having more than one operation, thirty-two are believed to have shown duodenal ulcers at their first operation, and seventeen gastric. The average time period between the first and second operations was about four years. In the great majority of cases (forty-three) the chief symptom that brought the patient to a second operation was pain; in five cases the presenting symptom was hemorrhage; in one instance, vomiting. Among the patients operated on twice, a gastrojejunal ulcer was found in fourteen instances. The results of the operation for gastrojejunal ulcers were poor in the great majority of cases. Of the remaining thirty-five patients requiring a second operation, approximately half had not had a gastro-enterostomy at the first operation. A gastro-enterostomy at the second operation gave in general excellent results. The results of operation in the group with duodenal ulcer were better in those who had shown evidence of gastric stasis prior to operation. The suggestion is made that this is not due to obstruction of the pylorus per se, but to the fact that marked obstruction is caused by chronic, indurated lesions—the most favorable type for operation. No relation could be found between the total acidity prior to operation and the later development of symptoms, except that the patients who later developed gastrojejunal ulcer showed a high acidity prior to the first operation. The small ulcer of the duodenum showed a greater recurrence of symptoms than the larger, calloused ulcer. Removal of the appendix in connection with the operation for duodenal ulcer did not, in this series of cases, appear to lessen the recurrence of ulcer symptoms.

Merits of Ambulatory and Hospital Treatment of Peptic Ulcer.—What are the results of medical treatment for peptic ulcer? Blackford and Bowers analyzed some of their cases to answer this question. Casual ambulatory medical treatment has been satisfactory in 60 per cent of uncomplicated cases of duodenal ulcer. Careful Sippy management has likewise been satisfactory in 60 per cent. Hospital medical treatment has not given better results than ambulatory treatment.

Hospital treatment may better train the patient to look after himself, but the results have not been better for the patient. Serious hemorrhage during or after medical treatment has occurred in 6 per cent (five out of eighty cases). No instance of perforation is known to have occurred during or after any kind of medical advice. A mortality of 2 per cent (two cases) attributable to ulcer hemorrhage has been noted in follow-up studies for from two to ten years. Both patients were notably poor risks who would not have been considered in a condition for surgery by the most enthusiastic surgeon. Hemorrhages have not been prevented by either medical or surgical treatment. They have occurred after medical or surgical treatment with the same percentage of frequency. Repeated hemorrhages indicate a resection of the ulcer-bearing area. The authors state that complications of peptic ulcer are best treated surgically. Such cases give the best surgical results and the poorest medical results.

Histamine as Gastric Secretory Stimulant.—Gompertz and Cohen assert that as little as 0.25 mg. of histamine hydrochloride suffices to demonstrate its action as a gastric secretory stimulant. This dose is devoid of untoward effects or of any unpleasant symptoms whatever. Accordingly, the previously recommended larger dosage (0.50 mg.) no longer seems necessary or desirable in diagnostic or therapeutic procedures. The determination of the minimal effective dose of histamine for producing an unmistakable functional response of the gastric glands has paved the way for a consideration of the possible use of the drug for therapeutic purposes in appropriate cases of impaired gastric secretory function. With the effective dosage thus reduced to a minimum, the production of objectionable systemic effects is practically averted. Histamine hydrochloride in 0.25 mg. doses appears to be useful in all conditions in which a safe and efficient gastric stimulant is indicated.

Clinical Experiments with Gastroduodenal Analysis.—Some of his previously reported experiments with the production and healing of peptic ulcers in dogs are briefly reviewed by Morton. The experiments suggested the importance of mechanical and chemical factors in determining the location and chronicity of the peptic ulcers. In a preliminary report some experiments are described in which tubes were passed into the stomach and duodenum in two groups of patients: those without peptic ulcer and those with peptic ulcer. The position of all tubes was verified roentgenologically. Ewald test meals were eaten by the patients and afterward samples of material were withdrawn from the stomach and duodenum simultaneously. In persons without peptic ulcer, no free hydrochloric acid was recovered in samples of the contents of the duodenum. In persons with peptic ulcer, free hydrochloric acid was found in samples from the duodenum. The experiments on patients suggested the presence of a relative acid-alkali balance between the secretions of the stomach and duodenum in normal persons and a relative acid-alkali imbalance in those persons with peptic ulcer. An analysis of the factors involved in these and previous experiments suggested the probability that the site of peptic ulcer is determined by mechanical factors and that the chronicity may be due to a relative imbalance between the acids of the stomach and the alkalis of the duodenum, causing incomplete or faulty neutralization of the acid gastric chyme. Improper functioning of the pylorus may be an important factor in causing the acid-alkali imbalance.

Marked Monocytosis Following Antisyphilitic Treatment.—The case reported by Wilson presented an unusual, though not new, type of reaction to antisyphilitic treatment. Besides the interesting general reaction with septic tonsillitis there was a decided action on the leukopoietic centers, in that a leukopenia was present with a depression of the polymorphonuclears and a stimulation of the monocytes. This type of case cannot with consistency be called agranulocytic angina in the sense that is usually attached to that term. The causative factor is not evident, as arsenic, benzene and the arsenobenzene preparations occasionally all give rise to a similar picture, but the evidence seems to point to a poisoning by the benzene or arsenic rather than by the conjugated arsenobenzene compound, arsphenamine.

Adenoma of Islands of Langerhans with Associated Hypoglycemia.—A case is reported by McClenahan and Norris in which periodic attacks of hypoglycemia were associated with loss of memory or consciousness in a patient who was found at autopsy to have a lesion of the island cells. The lesion consisted of a large circumscribed nodule (adenoma) which was found to be wholly composed of island cells, and islands in the remainder of the pancreas were found to be markedly hypertrophied. The significance of this relationship between hypoglycemia and hypertrophy or adenoma formation of the islands is referred to and it would seem to add further evidence toward the creation of a new disease entity.

Simplified Method of Gastric Analysis.—A modification of the methods of Lanz and Bloomfield is proposed by Cheney as a simple routine procedure in the study of patients complaining of gastro-intestinal disorders. The meal consists of 50 cc. of 7 per cent alcohol containing 1 cc. of a 0.1 per cent solution of phenolphthalein in 95 per cent alcohol. It is prepared by adding 1 cc. of the indicator to exactly 49 cc. of the alcohol just before administering the meal, although the solution will keep several weeks after it is made up. This is a 2: 1,000 solution of the indicator, and consequently dilutions of 50 per cent and greater can be read with the Dunning colorimeter, which is already in general use for kidney function tests. This colorimeter is standardized for a 1: 1,000 solution, so that a reading must be divided by 2 in determining the percentage of phenolphthalein in a specimen for gastric analysis removed after the introduction of an alcohol-phthalein test meal. The technic of administering the meal is similar to that already in general use, except for the time at which the extractions are made. The patient should fast twelve hours, and be as quiet as possible during the test. A Jutte tube is passed and all fasting contents are removed. The meal, warmed to body temperature, is introduced through the tube and two subsequent specimens are removed. For the first, from 10 to 15 cc. is withdrawn twenty minutes after the meal, and the second is withdrawn forty minutes after the meal. All of the last specimen is removed and the total amount is recorded. The specimens are tested for free hydrochloric acid immediately after their removal, and if achlorhydria is present the tube is not yet withdrawn. A solution of histamine representing 0.1 mg. per 10 kilograms of body weight is injected subcutaneously. Gastric contents are removed thereafter until free hydrochloric acid appears or until three samples have been tested and found negative for free acid. The fasting contents and both the specimens removed after the meal has been given are analyzed as in other methods of gastric analysis with the addition of the determination of the percentage of phenolphthalein present in specimens I and II.

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Protected Swivel Chair for Roentgenoscopy. S. L. Warren, Rochester, N. Y.—p. 570.
Extraction of Foreign Bodies in Daylight Under Roentgen Control. C. Heuser, Buenos Aires, Argentina.—p. 571.

Liver Abscess with Roentgenologic Demonstration of Rupture into Bile Ducts.—A case of amebic abscess of the liver is reported by Ude, with a unique roentgenologic demonstration of the entire biliary tract following the injection of sodium iodide solution into a thoracic fistula.

Roentgen Observation of Benign Tumor of Stomach Prolapsing Through Pylorus.—A case of benign polyp of the stomach is reported by Rigler in which it was possible to observe roentgenoscopically and record on films the prolapse of the growth through the pylorus into the duodenal bulb.

American Review of Tuberculosis, Baltimore

19: 1-118 (Jan.) 1929

Laennec's Invention of Stethoscope. W. T. Longcope, Baltimore.—p. 1.
*Study of Bacillus Calmette-Guérin (B C G). S. A. Petroff, A. Branch and W. Steenken, Jr., Trudeau, N. Y.—p. 9.
Isolation of Tubercle Bacillus from Sputum: Comparative Study of Petroff's and Corper and Uyei's Methods. M. Malkani, Trudeau, N. Y.—p. 47.
*Testicular Allergic Response (Spermatocyte Reaction) in Guinea-Pigs for Diagnosis of Tuberculous Fluids. J. J. Wiener, J. E. Blair and H. L. Jaffe, New York.—p. 55.
Compression Therapy of Pulmonary Tuberculosis. L. S. Peters, Albuquerque, N. M.—p. 74.
*Blood Transfusion in Pulmonary Tuberculosis. W. G. Gamble, Jr., Charleston, S. C.—p. 84.
*Tuberculous Pleurisy: Treatment. E. S. Bullock, Detroit.—p. 90.
Association of Tuberculous Lymphadenitis and Genito-Urinary Tuberculosis. F. J. Lussmann, Burlington, Wis.—p. 95.
Adult Tuberculosis and Bearing on Diagnosis: 1,000 Cases. I. C. Molony, Saskatchewan, Canada.—p. 99.

Study of Bacillus Calmette-Guérin (B C G).—The data presented by Petroff et al. indicate that the B C G micro-organism in undissociated form is not very virulent for guinea-pigs and rabbits. Progressive tuberculosis occurs rarely, but it does occur. The virulence of B C G can probably be kept at a low level by cultivating it on glycerol-bile-potato medium, but if it is to be used as a vaccine one must bear in mind that the human body is not to be compared to glycerol-bile-potato as a medium for its continued viability and development. No one can predict what may happen in the course of time if B C G is implanted in the human body and if accidentally carried from human being to human being, or what transformations may occur after such a train of events. There are indications that the avirulent R micro-organism may be transmuted into the more virulent S form by cultivation of the former on a medium containing its antiserum. Therefore, as a result of their studies on more than 250 guinea-pigs and rabbits, the authors believe that the use of B C G in prophylactic immunization may be a dangerous procedure at present.

Spermatocyte Reaction in Guinea-Pigs for Diagnosis of Tuberculous Fluids.—An attempt was made by Wiener et al. to apply Long's "spermatocyte reaction" (testicular tuberculin reaction) to the diagnosis of body fluids suspected of coming from tuberculous foci. The test consists of the injection of from 0.1 to 0.3 cc. of the suspected fluid into the testis of a tuberculous guinea-pig, autopsy of the animal after from five to seven days, and histologic examination of the testis for a characteristic degeneration. The diagnostic value of the test is impaired by the fact that rarely a tuberculous fluid has failed to give the typical reaction, and about 35 per cent of nontuberculous fluids (particularly fluids from cases of malignant tumor) have given a reaction histologically indistinguishable from that given by a tuberculous fluid. Data obtained show that this is a toxic effect, which apparently cannot be eliminated by reducing the amount of fluid injected. However, it may be said that, with the exception of spinal fluids, if from 0.1 to 0.2 cc. of a fluid from a suspected tuberculous focus, on inoculation into the testis of a tuberculous guinea-pig, does not produce a reaction as described, the possibility of tuberculosis of that focus may be definitely ruled out.

Blood Transfusion in Pulmonary Tuberculosis.—Gamble asserts that transfusion in selected cases of pulmonary tuberculosis provides a means of building up the patient's blood, with resulting mental, physical and economic gain.

Treatment of Tuberculous Pleurisy.—In fifty-seven cases of pleurisy Bullock introduced enough gas or air to stop both symptoms and signs if the latter were present. In some cases the artificial pneumothorax was continued indefinitely and in others only for the time being. He never saw it do any harm, and it never failed to stop the pain.

Archives of Dermatology and Syphilology, Chicago

19: 1-174 (Jan.) 1929

Multiple Superficial Benign Epithelioma of Skin: Differentiation from Kindred and Similar Eruptions. F. Wise, New York.—p. 1.
Skin Diseases of Endocrine Origin (Dyshormonal Dermatoses): Poikiloderma-Like Changes with Underdevelopment of Sexual Glands and Dystrophia Adiposogenitalis. B. Bloch and H. Stauffer, Zurich, Switzerland.—p. 22.
*Lipid Studies in Xanthoma. U. J. Wile, H. C. Eckstein and A. C. Curtis, Ann Arbor, Mich.—p. 35.
*Eczema: III. Rôle of Sympathetic Nervous System and Calcium-Potassium Ratio in Altering Cutaneous Irritability in Rabbit. J. V. Klauder and H. Brown, Philadelphia.—p. 52.
*Occurrence of Tuberculoid Reactions in Inguinal Glands in Early Syphilis. H. E. Michelson, Minnespolis.—p. 66.
Dermatitis Vegetans: Two Cases of Hallopeau Type. H. J. F. Wallhauser, Newark, N. J.—p. 77.
Jean Louis Alibert. D. W. Montgomery, San Francisco.—p. 89.
Hematogenous Production of Dermatomycoses: Experimental Studies. S. M. Fried and M. B. Segal, Moscow, Union of Socialist Soviet Republics. —p. 98.
*Mercuric Salicylate: Its Excretion in Treatment of Syphilis. H. N. Cole, J. Gammel, N. E. Schreiber and T. Sollmann, Cleveland.—p. 105.

Lipid Studies in Xanthoma.—In three cases of typical xanthomas., Wile et al., by means of tissue analysis, have been able to demonstrate that identical cholesterol values in the local lesions exist for all three and that the cholesterol is not increased in the tumors over the amount that is found in normal human epithelium. The largest part of the fatty content in the cutaneous lesions is lipids, other than cholesterol. In two of their three cases, the cholesterol values in the blood were normal on repeated examination. In the third case, the cholesterol value in the blood was increased as part of a lipemia in association with the diabetic state. Whereas the total fats were increased almost eight times the normal, the cholesterol was increased only twice the normal. The xanthomatous lesions in a diabetic patient were markedly influenced by diet. An increase in sugar greatly increased the number of tumors. The withdrawal of carbohydrates from the diet, and a relative increase in ingested fat resulted in the recession and disappearance of many of the tumors. The increase in sugar and the consequent caloric increase in the diet was followed by a marked increase in lipemia. A maintenance diet over six weeks caused a marked involution of all the lesions. The remaining two patients did not show striking changes in their local lesions as the result of increased ingestion of sugar. Apparently the best treatment for the xanthomatous state in the presence or absence of glycosuria would seem to be a reduction diet, such patients being treated as one would treat obesity.

Effect of Nervous System in Altering Cutaneous Irritability in Rabbit.—It would appear from evidence submitted by Klauder and Brown that the autonomic nervous system is concerned in altering cutaneous irritability in the rabbit, perhaps through a disturbance of the calcium-potassium ratio. The obverse of the principle that the ion-ratio of calcium and potassium determines sympathetic and parasympathetic equilibrium is discussed in relation to other pharmacologic experimentation in the direction of showing the influence of nervous control of biochemical processes and also in relation to the results of the study reported.

Tuberculoid Reactions in Inguinal Glands in Early Syphilis.—The inguinal nodes from twenty-nine persons with early untreated syphilis were excised by Michelson and examined microscopically. Banal nonsyphilitic inflammation occurred in twenty-one specimens. Tuberculoid reactions were observed in eight nodes. Tuberculoid structure was found much earlier in the inguinal nodes in early syphilis than in cutaneous lesions. If the tuberculoid reaction is a manifestation of high resistance, then probably the production of immunity or antibodies begins early in the lymphatic system.

Excretion of Mercuric Salicylate in Treatment of Syphilis.—The excretion of mercury was studied by Cole et al. quantitatively in patients receiving intramuscular injections of an oil suspension of mercuric salicylate. The data led to the following conclusions: The rate of the urinary excretion of mercury is high for the first two to four hours after the injection; it then falls rapidly to a much lower level. The salicylate therefore behaves at first as a soluble, and later as a relatively insoluble preparation. Because of the short duration of the period of rapid excretion, only a small fraction of the mercury is eliminated in this form, the total excretion in the first two days being only from 5 to 15 per cent of the amount injected; at the end of a week, from 85 to 90 per cent of the mercury is still unexcreted. This represents an accumulation of depots of mercury for the continuous absorption and excretion of mercury, which takes place for long periods at a somewhat higher level than with inunction or with intramuscular injections of the usual doses of mercuric dibromide. The total retention of mercury, one or two weeks after the termination of the course of four or five injections of the salicylate at weekly intervals, corresponds to more than half of the amount injected, and may attain 150 mg. of mercury. It therefore appears unnecessary to the authors to inject mercuric salicylate oftener than once a week; more frequent administration would be inadvisable, partly for fear of excessive accumulation and partly because there are indications of renal irritation. The salicylate produces a diuretic response, and the permeability to mercury increases progressively for the first two or three injections, and then suffers a definite decline. The fecal excretion of mercury in the one patient in whom it was followed through the whole course amounted to about one twelfth of the urinary excretion; a similar relation was observed in another patient during the period when the excretion was studied.

Archives of Surgery, Chicago

18: 1-178 (Jan.) 1929. Part I

*Cancer of Thyroid Gland. H. M. Clute and L. W. Smith, Boston.—p. 1.
*Obstructive Hydro-Ureteral Angularity with Hydronephrosis in Children: Surgical Treatment. F. Hinman, San Francisco.—p. 21.
*Endometriosis. K. Hosoi and L. H. Meeker, New York.—p. 63.
*Treatment of Abscess of Brain. C. C. Coleman, Richmond, Va.—p. 100.
*New Methods of Anastomosis of Common Bile Duct. G. L. McWhorter, Chicago.—p. 117.
*Colloid Carcinoma of Colon and Rectum. F. W. Rankin and C. L. Chumley, Rochester, Minn.—p. 129.
Gastrectomy. J. M. T. Finney and W. F. Rienhoff, Jr., Baltimore.—p. 140.
Thirty-Seventh Report of Progress in Orthopedic Surgery. P. D. Wilson, Boston, and Others.—p. 163.

Cancer of Thyroid Gland.—Clute and Smith analyze sixty-seven cases, representing an incidence of 1.68 per cent. There were 6.4 times as many women as men. The greatest incidence of the disease was between the ages of 50 and 65. Cases occurred in persons aged 20 and 82. An adenomatous goiter preceded the malignant disease in 94.4 per cent of the cases studied. Histologically, cancer of the thyroid may be divided into four chief groups: (1) malignant adenoma; (2) squamous cell carcinoma; (3) giant cell carcinoma, and (4) small cell carcinoma. Cases in each of these groups show a marked similarity in their clinical history and course. Knowledge of the histologic group of a cancer of the thyroid gives valuable information as to (*a*) the chances of recovery of the patient; (*b*) the probable duration of life, and (*c*) the advisability of roentgen treatments. When cancer of the thyroid can be diagnosed clinically, the chances of cure are small. Lowering the mortality of malignant thyroid disease must at present depend on the removal of the premalignant adenoma. Surgical removal and postoperative roentgen treatment give some good results in the first histologic group (malignant adenoma). Treatment has not been of any value in the other types of malignant disease of the thyroid.

Ureteral Angularity with Hydronephrosis in Children.—Of the twelve patients with posterior urethral valves seen by Hinman, four are dead of uremia and two have disappeared from observation. In the six known to be alive the urethral valves were destroyed—in one, by cystotomy, and in five, by fulguration by way of the urethra. This destruction was carried out in one, six years, in one, four years, in one, three years, in two, two years and in one, one year before this paper was written. Of the patients who were not followed, one was treated by fulguration five years and the other two and a half years before the present admission. The condition of the upper urinary tract in these two patients was not studied at the time of the first admission, and they failed to return for investigation. Urethral valves, however, were definite and every effort is being made to get these patients back for further study. The four patients who died all had huge bilateral hydro-ureters and hydronephroses and died of urinary sepsis and uremia. Four of the remaining six patients who are alive show bilateral obstructive hydro-ureteral angularity of varying degree.

Endometriosis in Uncommon Locations.—Seven unusual cases of endometriosis are reported by Hosoi and Meeker: (*a*) in an inguinal lymph node, associated with endometriosis of the groin and endometrial carcinoma of the transverse colon; (*b*) in the vermiform appendix, associated with endometriosis of the fallopian tube; (*c*) in the vermiform appendix without other demonstrable pelvic pathologic process; (*d*) in an appendectomy scar, twenty-six and one-half years after the appendectomy; (*e*) in the urinary bladder, associated with endometriosis of the uterus and fallopian tube; (*f*) in particles of endometrium lying free in the lumen of a normal fallopian tube, without associated pelvic pathologic process, and (*g*) in endometrial particles in the lumen of the fallopian tube, associated with endometriosis of the ovary, tube and posterior wall of the uterus.

Treatment of Abscess of Brain.—In a series of fourteen cases of chronic abscess of the brain reported on by Coleman, there were twelve recoveries. The method of drainage was similar in every case; that is, the eye end of a small, soft rubber catheter was used. The recoveries have been more or less complete in all of the nonfatal cases. An effort was made to evacuate the abscess completely at the primary operation, and an attempt was not made in any case to wash out the débris or to cleanse the cavity. The drainage following primary evacuation was so slight in some of the cases that Coleman feels that it might have been omitted.

New Methods of Anastomosis of Common Bile Duct.—By an original method of suturing the overlapped split ends of the bile ducts, McWhorter has succeeded in doubling the lumen in the important region of the anastomosis. This should prevent any tendency to late stricture. In thirteen experiments, the common duct was split nearly the entire length and a small segment was resected. The two "riband" ends were sutured together with two, three or four deeply placed sutures of fine silk. Ten of the experiments were successful. Nine were terminated, many from distemper, after from seven to sixty-five days. One animal was alive and in excellent health after eleven months. The intravenous injection of tetraiodophenolphthalein after four months showed the dye passing freely into the intestine, although the gallbladder failed to show. The results in these experiments indicated a return of function to the common duct after a week or ten days, with closure of the gallbladder fistula in two or three weeks. In thirteen experiments after simple division or resection of the duct, the ends were split for a short distance and overlapped, so that the mucous surfaces were against each other. This doubled the size of the lumen and also permitted more than twice the length of edges available for suture than in the end-to-end suture. By splitting only one side of the duct, it was necessary to free and rotate each end 90 degrees so that the mucous surfaces could be approximated. Nine experiments were successful. They were terminated in from eight to sixty-five days. The common duct was found to be functioning after from eight to ten days. In one experiment, at the end of six days the anastomosis was apparently sealed. A bile leak did not occur in the successful experiments.

Colloid Carcinoma of Colon and Rectum.—Rankin and Chumley find that colloid carcinoma occurred in about 5 per cent of the 3,202 cases of carcinoma of the colon and rectum. A high percentage of colloid carcinomas of the colon and rectum were of a low grade of malignancy, but showed a high grade of mucus formation. In the lower grades of malignancy, there was a tendency for the amount of mucus present to be inversely proportional to the grade of malignancy. The grading of the amount of mucus present in colloid carcinoma is of value as a prognostic factor; grades 2 and 3 offer the best chance

for postoperative longevity. If the lymph nodes are involved in colloid carcinoma, the prognosis is unfavorable regardless of the grade of malignancy or the amount of mucus present.

California and Western Medicine, San Francisco

30: 1-72 (Jan.) 1929

Treatment of Injuries of Hand. S. Bunnell, San Francisco.—p. 1.
Subacute Bacterial Endocarditis: Part I. E. C. Dickson, San Francisco.—p. 5.
*Fibrosis of Myocardium. R. D. Evans and F. R. Nuzum, Santa Barbara.—p. 11.
Medical Education. L. Porter, San Francisco.—p. 16.
Industrial Dentistry: Its Trend: Some Observations on European Practice. G. Millberry, San Francisco.—p. 21.
Principles Which Govern Reflex Action in Disease. F. M. Pottenger, Monrovia.—p. 23.
*Treatment of Malignant Tumors of Bladder: Surgical Diathermy. W. E. Stevens, San Francisco.—p. 29.
Hospital and Intern. P. T. Magan, Los Angeles.—p. 35.
Asphyxiated Infant. V. L. Ward, Ogden, Utah.—p. 38.
Anesthesia for Crippled Children. E. Buckley, San Francisco.—p. 41.
Medical History: William Harvey: De Motu Cordis. F. H. Rodin, San Francisco.—p. 43.
Thermogenesis by Radio Frequency Currents. A. Soiland and A. H. Warner, Los Angeles.—p. 44.
Tuberculous Appendix: Perforation by Grass Stalk: Case Report. J. M. Askey, Los Angeles.—p. 46.

Study of Fibrosis of Myocardium.—Forty-three hearts were examined by Evans and Nuzum. Ten hearts were from patients known to have had hypertension. In most the systolic blood pressure had been 200 or above for some time. The average heart weight was 457 Gm. In six instances no scar tissue was seen in the heart muscle, and in these the coronary arteries were slightly to moderately sclerosed, with patent lumens. In the other four there was marked sclerosis of the coronary arteries, with considerable narrowing of the lumens, especially of the anterior descending branch of the left. In these hearts small patches of fibrous tissues were found in the myocardium of the left ventricle and septum; the patches were recognizable grossly as gray regions in two instances, but were apparently not of sufficient extent to have interfered materially with the heart's action. Microscopically interruption of the muscle fibers and replacement by dense rather acellular connective tissue were noted. Marked sclerosis of the smaller branches of the coronary arteries was observed in these regions. In the remaining hearts, for which there were no clinical data, are included nine instances of gross infarction. Rupture of the left ventricle had occurred in four, while in the rest there was aneurysmal dilatation of the left ventricle in three, and of the right ventricle in one. In all of these there was marked narrowing of the lumen of the artery supplying the infarcted region, or complete obliteration. There was marked sclerosis of the coronary arteries, especially of the anterior descending branch of the left. Thrombosis combined with the sclerosis to produce complete occlusion. In a third group of five hearts, four with valvular lesions and one hypertrophied as a result of adhesive pericarditis, no scarring of the muscle of the wall of the chamber called on to do the increased work was found; in all the coronary arteries had patent lumens and fairly smooth linings. In a fourth group, mostly hypertrophied, no valvular lesion or adhesive pericarditis was present to explain the increased weights. In these a slight scarring of the myocardium was present in four. In two of these the sclerosis of the coronary arteries was slight, in one moderate, and in one, marked, of the anterior descending branch of the left artery. In the remaining fifteen hearts the involvement of the coronary arteries varied from little or none to a moderate thickening. Likewise in these the only change present was an hypertrophy of the muscle fibers, no scarring being seen. The authors state: Fibrosis of the myocardium is not the result of work hypertrophy but in the majority of instances results from decreased blood supply to the affected region from disease of the coronary arteries. Less often scars of the myocardium may result from a preceding syphilitic or rheumatic myocarditis. A decompensated heart is not justification for the diagnosis of fibrosis of the myocardium. In the presence of electrocardiographic changes, and with a characteristic history of anginal pains, the presence of scar tissue may be predicted, though in the absence of gross infarction these regions of fibrosis do not seem important.

Surgical Diathermy in Treatment of Malignant Tumors of Bladder.—Seven patients with carcinomas—four papillary and three infiltrating in type—were treated by Stevens with surgical diathermy through the open bladder. Four are alive and free from recurrence—one, three years and three months, one, two years and three months, one, two years and one month, and one, six months after operation. Two died of other causes, but were free from recurrence—one, one year and the other, one year and four months after operation. One patient died six days after operation. Stevens is convinced that surgical diathermy is of greater value than any other procedure and that it is destined to become the most popular method of treatment of malignant tumors of the bladder.

Colorado Medicine, Denver

26: 1-30 (Jan.) 1929

Place of Ophthalmology in Medicine. E. Jackson, Denver.—p. 3.
Pyelitis: From Standpoint of Urologist. H. Wear, Denver.—p. 10.
Id.: In Children. R. P. Forbes, Denver.—p. 13.
Id.: In Obstetric and Gynecologic Patient. C. B. Ingraham, Denver.—p. 15.
Id.: From Internist's Standpoint. R. W. Arndt, Denver.—p. 19.

Journal of Industrial Hygiene, Baltimore

10: 331-413 (Dec.) 1928

Physiologic Reactions of Resting Subjects to Cooling Power and Effective Temperature. J. A. Campbell and T. C. Angus, London.—p. 331.
Summer Comfort Zone: Climate and Clothing. C. P. Yaglou and P. Drinker, Boston.—p. 350.
Effects of Atmospheric Conditions on Industrial Worker. T. Bedford, London.—p. 364.
Relations Between Kata Cooling Powers and Atmospheric Conditions. L. Hill, T. C. Angus and E. M. Newbold, London.—p. 391.

Kansas M. Society Journal, Topeka

30: 1-34 (Jan.) 1929

Mechanism in Psychogenic Disease. N. R. Smith, Halstead.—p. 1.
Anesthesia: Local versus General. D. Peterson, Herington.—p. 4.
Undulant Fever. E. G. Brown, Topeka.—p. 9.
Treatment of Secondary Anemia. R. L. Haden, Kansas City.—p. 15.
Ethics. A. J. Davis, Logan.—p. 17.

Kentucky Medical Journal, Bowling Green

27: 1-48 (Jan.) 1929

Treatment of Fractures Without Splints. G. A. Hendon, Louisville.—p. 3.
Analysis of Fractures at Lynch, Kentucky, Mines During Past Five Years. M. H. Todd, Lynch.—p. 13.
Comparison of Estimated and Actual Disability in Certain Groups of Fractures: "Follow-Up" of Cases: Deductions. E. Duncan, Louisville.—p. 17.
Version: Indications: Technic. H. M. Rubel, Louisville.—p. 31.
Management of Normal Labor. A. F. Finley, Madisonville.—p. 34.
Tularemia. C. N. Kavanaugh, Lexington.—p. 38.
Acrodynia in Child Aged Four Years. P. F. Barbour, Louisville.—p. 42.

New England J. Medicine, Boston

200: 1-50 (Jan. 3) 1929

Experience with Chronic Cardiac Patients at Robert B. Brigham Hospital. L. M. Spear, Boston.—p. 1.
Obtaining Occupations for Adult Males with Heart Disease. H. C. Raymond, Boston.—p. 2.
Placement of Women with Heart Handicap. G. L. Fletcher, Boston.—p. 3.
Home Adjustments in Chronic Heart Disease. N. B. Upton, Boston.—p. 5.
Instruction in Home for Children Handicapped by Heart Disease. E. M. Terry, Boston.—p. 7.
Vocational Guidance for Children with Heart Disease. S. J. Ginn, Boston.—p. 9.
Need of Beds in Hospitals for Chronic Cardiac Patients. H. B. Sprague, Boston.—p. 10.
Critical Review of "Medical Aspects of Contraception." N. E. Himes, Cambridge, Mass.—p. 13.
Deformity in Infantile Paralysis: Its Prevention and Correction. W. R. MacAusland, Boston.—p. 18.
Fibroid Tumors of Uterus. J. W. Jameson, Concord, N. H.—p. 22.
Treatment for Erysipelas. J. C. Tappan, Derry, N. H.—p. 27.

200: 51-104 (Jan. 10) 1929

*Pasteurization. M. J. Rosenau, Boston.—p. 51.
Tuberculosis as an Industrial Accident. J. B. Hawes 2d, Boston.—p. 55.
*Some Sidelights on Thymus Vogue. J. Garland, Boston.—p. 59.
Bronchoscopy in Acute Lung Abscess: Four Cases. L. F. Johnson, Boston.—p. 64.
Value of Medical Library. J. F. Ballard, Boston.—p. 65.
Cardiovascular Review. R. S. Palmer and H. B. Sprague, Boston.—p. 71.

Requirements for Pasteurization of Milk.—The following essential requirements for a safe and satisfactory milk supply are laid down by Rosenau: 1. Cows should be healthy

and free especially from communicable infections, or any febrile disease or inflammatory condition of the udder. 2. All persons who in any way come in contact with the milk or milk apparatus should be free from communicable diseases and not be carriers. A minimum of human contact should be insisted on. 3. The milking should be done in clean rooms, the udders having been washed; the hands of the milker should be clean and dry. 4. The milk should be received into clean, sterilized pails with a small mouth so as to keep out the dust and dirt which falls from the udder and belly of the cow. If strainers are used they should be cleaned and boiled morning and evening. Cans and pails should be cleaned with washing soda or alkaline powder (not soap), rinsed in clean water and then steamed or boiled. 5. The milk should be chilled to 50 F. or under at once, and kept protected from flies, dust, odors and contamination in a clean milk house until collected. A wooden paddle should not be used to stir the milk. If stirred a metal paddle is preferable. 6. The milk in transit to the city should likewise be kept protected and cold, at a temperature not higher than 50 F., and guarded against tampering en route. The lower the temperature, the easier it will be to keep the bacterial count down. 7. All apparatus at the city dairy, such as tanks, clarifiers, separators, pasteurizers and bottling machines, should be kept scrupulously clean and sterilized daily with steam. 8. Pasteurization at from 142 to 145 F. for not less than thirty minutes should be followed by rapid chilling and the milk should be kept below 50 F. until delivered to the consumer. Milk and cream used for making milk products should also be pasteurized. The need here is just as great as for milk itself. 9. The pasteurized milk should be bottled by machinery in sterilized bottles, well sealed, and delivered promptly to the consumer. 10. All bottles and cans, after use in city delivery, should be washed and sterilized before being returned to the producer in order to prevent the conveyance of infection to the dairy or country farm. 11. The milk must be graded. In this way the producer is paid for care and cleanliness and the consumer has a ready means of knowing the sanitary character and nutritive value of the milk he purchases. The health officer should make frequent bacterial counts, and also sanitary surveys, for the purpose of grading. 12. A sanitary code based on good milk laws, which include milk products, should be enforced. 13. A system of licensure, inspection and education to insure these requirements should be followed.

Incidence of Enlarged Thymus.—In 1,564 routine autopsies at the Massachusetts General Hospital twenty-three enlarged thymuses were found. Eleven patients had survived the immediate effects of major operations. Only one patient died during operation—a sigmoidostomy for intestinal obstruction. Nine patients had had chest roentgenograms, in only one of which was possible thymic enlargement suggested. Four patients might possibly have died as a result of status lymphaticus, although in none of them was such a diagnosis necessary to account for death. The present vogue of roentgen therapy for enlarged thymus and irradiation in all cases in which a shadow appears, Garland says, would seem to be unjustified.

New York State J. Medicine, New York

29: 1-64 (Jan. 1) 1929

*Rôle of Arterial Occlusion and Anoxemia in Cause of Cerebral Diplegias. H. R. Merwarth, New York.—p. 1.
Mastoiditis: Sinus Thrombosis and Simplification of Operative Procedure. H. Hays, New York.—p. 5.
Ear Infections in Children. J. E. McAskill, Watertown.—p. 9.
Analysis of Mortality Figures of Willard Parker Hospital for Years 1922-1927 Inclusive. S. W. Wynne, New York.—p. 12.
Perforated Gastroduodenal Ulcers. R. Colp, New York.—p. 13.
Treatment of Heart Decompensation. M. A. Rabinowitz, New York.—p. 16.
Relation of Allergy to Scarlet Fever. F. A. Stevens and A. R. Dochez, New York.—p. 22.
Practical Management of Cardiovascular-Renal Breaks. N. Strauss, New York.—p. 26.
Case Belonging to Wilson's Disease: Pseudosclerosis Group. G. M. Mackenzie and W. Penfield, Montreal.—p. 28.

Anoxemia as Cause of Cerebral Diplegias.—Cerebral diplegia seems to occur in the earlier prematurely new-born rather than in those born later. Although venous bleeding occurs with great frequency and can have serious effects, it is contended that arterial occlusion with consequent anoxemia, even of brief duration, can lead to serious results. The conception is presented by Merwarth that it is the arterial occlusion incident to the extreme molding which is responsible for the apparent frequency of cerebral diplegias in the premature, and it may serve as an explanation of those cases occurring at full term after severe protracted, difficult labors.

Ohio State M. Journal, Columbus

25: 1-80 (Jan.) 1929

Surgical Pathology of Exophthalmic Goiter. W. M. Simpson and E. R. Arn, Detroit.—p. 23.
Some Simple Renal Function Tests in Relation to Diagnosis and Prognosis of Major Nephritides. L. Foshay, Cincinnati.—p. 28.
Neurologic Disturbances Associated with Hypertrophic Arthritis of Spine. F. C. Wagenhals, Columbus.—p. 31.
*Diagnosis of Rickets in Early Infancy. J. V. Greenbaum and Others, Cincinnati.—p. 34.
Recent Trends in Occupational Diseases in Ohio. B. E. Neiswander and E. R. Hayhurst, Columbus.—p. 37.

Diagnosis of Rickets in Young Infants.—Approximately 600 babies have been studied by Greenbaum et al., in 422 of whom roentgenograms were taken before they were 6 months of age. Forty-two of these showed well marked roentgenographic evidence of rickets. The diagnostic signs consisted chiefly in the appearance of fraying of the end of the ulna, and occasionally of the radius. Thirty-two showed varying degrees of craniotabes, and eighteen showed a degree of enlargement of the costochondral junction (rosary) which was considered rachitic. Twelve patients showed enlargement of the epiphyses of the wrist.

Philippine Island M. Assoc. Journal, Manila

8: 461-508 (Nov.) 1928

Statistical Studies on Pneumonia. W. Vitug and J. Hizon.—p. 461.
Extra-Articular Fusion of Tuberculous Hip with Good Result: Case. J. Santillan.—p. 470.
Percy's Cautery in Carcinoma of Cervix and Vagina: Sixteen Cases. C. D. Franco.—p. 474.
Incidence of Gonorrhea in Minor Delinquents of Girls' Training School. C. Cabrera.—p. 479.

Rhode Island Medical Journal, Providence

12: 1-16 (Jan.) 1929

Underlying Principles Employed in Artificial Feeding of Infants. K. M. Smith, Boston.—p. 1.
Plea for Cross-Eyed Child. J. F. Hawkins, Providence.—p. 3.
Diagnosis and Treatment of Tuberculous Laryngitis. B. S. Sharp, Providence.—p. 5.
Effect of Dental Pathology on Eye and Ear. L. B. Porter, Providence.—p. 9.

Surgery, Gynecology and Obstetrics, Chicago

48: 1-144 (Jan.) 1929

Effects of Retention of Pancreatic Secretion. J. Baló, Szeged, Hungary, and H. C. Ballon, Montreal.—p. 1.
Primary Carcinoma of Fallopian Tubes Associated with Tuberculosis. W. P. Callahan, F. H. Schiltz and C. A. Hellwig, Wichita, Kan.—p. 14.
*Syphilis of Stomach: Incidence. H. A. Singer and K. A. Meyer, Chicago.—p. 23.
Possibilities of Hysterosalpingography as Diagnostic and Therapeutic Measure. H. Nahmmacher, Jena, Germany.—p. 33.
Newer Conceptions of Surgery in Diabetes. J. A. Reed, Washington.—p. 44.
Diverticula of Male Urethra: Ten Cases. R. W. McKay and J. A. C. Colston, Baltimore.—p. 51.
Diagnosis and Treatment of Sterility Due to Diseases of Fallopian Tubes. H. Schmitz, Chicago.—p. 63.
Hydrogen Ion Concentration of Endocervical Secretions: Chemical Factors in Causation of Sterility. S. R. Meaker and W. Glaser, Boston.—p. 73.
*Gastro-Enterostomy. D. P. D. Wilkie, Edinburgh, Scotland.—p. 79.
Technic of Vaginal Operations on Uterine Adnexa. W. Weibel, Prague, Czechoslovakia.—p. 84.
Treatment of Fractures with Equilibrated Swinging Traction Apparatus. H. P. Wijnen, Amsterdam, Holland.—p. 90.
Fractures of Lateral Tuberosity of Tibia with Displacements of Lateral Meniscus Between Fragments. W. R. Cubbins, A. H. Conley and G. S. Seiffert, Chicago.—p. 106.
*Operation for Pilonidal Sinus. F. H. Lahey, Boston.—p. 109.
*Extra-Articular Immobilization of Hip Joint. H. C. Schumm, Milwaukee, Wis.—p. 112.
*Advanced Cancer Treated by Colloidal Lead: Nineteen Cases. B. F. Schreiner and R. C. Wende, Buffalo.—p. 115.
Multiplex Graft Technic for Extra-Articular Arthrodesis of Spine. C. M. Gratz, New York.—p. 119.
*Arteriovenous Aneurysm of Left Superior Thyroid Vessels. J. M. Mora, Chicago.—p. 123.
Preparation and Management of Diabetic Patient Subjected to Amputation for Gangrene. B. C. McMahon, R. Scharf and W. M. Bartlett, Morristown, N. J.—p. 125.

Incidence of Syphilis of Stomach.—Singer and Meyer have been able to demonstrate microscopic changes in syphilis in four surgically resected stomachs during a period of six years. During the same length of time, in approximately 5,000 consecutive autopsies, not a single instance of gastric syphilis was encountered. The authors conclude by analogy with duodenal ulcer that retrogression of the syphilic infection in the stomach frequently occurs. Furthermore, they infer that many of the cases diagnosed at autopsy as instances of benign pyloric hypertrophy, hour-glass stomach and linitis plastica actually represent cases of gastric syphilis encountered in the healing or healed stages. In support of the assumption that syphilis of the stomach tends to heal, and in so doing loses its characteristic anatomic features, is the fact that one can identify in a series of cases what are apparently transitions between the active and the healed stages of the infection. Even in a single specimen, different phases of the inflammatory reaction may be encountered. Two cases are reported in detail. In each the diagnosis is based on collective evidence, including the clinical, roentgenographic, laboratory and pathologico-anatomic (essential and associated) data.

Gastro-Enterostomy for Cicatrizing Duodenal Ulcer with Stenosis.—For cicatrizing duodenal ulcer with stenosis, Wilkie says gastro-enterostomy is still the operation of choice. For acute recurring but not stenosing ulcer, associated with marked acidity, the operation is best avoided. For gastric ulcer the operation is of value if combined with a direct attack on the ulcer. Correct placing of the stoma is the most important point in the operation. A free opening in the transverse mesocolon should be a sine qua non of the posterior operation. The transomental route of access to the posterior wall of the stomach is recommended. A midline abdominal incision, of especial value in operations on visceroptotic subjects, is described. The very great importance of a period of dieting and alkaline treatment after operation is emphasized.

Operation for Pilonidal Sinus.—In Lahey's technic the pilonidal sinus, together with all of its ramifications, is removed in one block by the excision of the entire skin area over the sinus and by the carrying of the block incision down to the sacrum and out to the glutei laterally. A thick, broad based pedicle of skin and subcutaneous fat is cut from one edge of the wound and transplanted medially to fill in the deep defect left by the block removal of the pilonidal sinus and its tracts. This flap covers the defect over the sacrum. The skin is sutured in the usual manner.

Extra-Articular Immobilization of Hip Joint.—Schumm removes a bone graft from the outer surface of the femur just below the trochanters and implants the upper end underneath a flap raised from the ilium, and the lower end into a pocket made by raising the doorlike flaps from the great trochanter. The method is simple. It requires only a single incision. The results have been uniformly successful in nine cases.

Advanced Cancer Treated by Colloidal Lead.—No clinical improvement in the tumor was noted in any case treated by Schreiner and Wende. Colloidal lead as used in the treatment of these cases produced a grave anemia. Hematuria was observed in at least two cases. The authors have discontinued the use of colloidal lead in the treatment of far advanced cancer.

Case of Arteriovenous Aneurysm of Left Superior Thyroid Vessels.—A case of arteriovenous aneurysm of the left superior thyroid vessels is recorded by Mora. A searching review of the literature has failed to disclose a similar case. Despite a known history of syphilis, this aneurysm was probably of traumatic origin, following a lobectomy on that side.

U. S. Veterans' Bureau M. Bulletin, Washington, D. C.

5: 1-86 (Jan.) 1929

Outpatient Clinic Under Hospital Administration. H. B. Fralic and C. W. Hughes.—p. 1.
Rehospitalizations. W. E. Chambers.—p. 4.
*Rupture of Syphilitic Cardiac Aneurysm. R. L. Benson.—p. 13.
Psychologist Looks at Psychiatry. G. V. N. Dearborn.—p. 17.
*Encephalography. A. R. Woods.—p. 26.
Pneumoconiosis. J. L. Arntzen.—p. 31.
Id.: Three Cases. E. A. Munoz.—p. 36.
*Causative Factors of Dementia Praecox: Influence of Blood and Serum on Embryologic Cells. E. W. Lazell and L. H. Prince, New York.—p. 40.
Phenomenon of Alcoholic Antigen Precipitation in Syphilitic Serums. B. S. Levine.—p. 42.
Oral Focal Infection. W. C. Holland.—p. 48.
Rusty Pipes: What Is to Be Done About It? S. L. Dorsey and E. W. Hunter.—p. 50.
Double Ureter and Double Pelvis of Kidney: Case. A. L. Roberts and E. H. Linfield.—p. 56.
Abscess of Liver and Right Psoas Muscle Secondary to Gangrenous Appendix. G. A. Nieweg.—p. 58.
Nursing Care of Patients with Heart Diseases in Acute Stage. J. Kerr.—p. 68.
General Outline of Activities in Occupational Therapy. F. E. Steele.—p. 71.

Rupture of Syphilitic Cardiac Aneurysm.—The remarkable feature in Benson's case was the relative freedom from pain and the absence of any diagnostic symptoms except those referable to cardiac hypertrophy and decompensation and general arteriosclerosis. The patient spent a part of each day in his wheel chair. Even the day before death he stated that he was feeling very well. On the eleventh day of his residence in the hospital, he complained of shortness of breath and suffocation, and was given caffeine, 2 grains (0.13 Gm.), and strychnine, one-thirtieth grain (2 mg.), hypodermically. In fifteen minutes he ceased breathing. The complete clinical diagnosis was cardiac hypertrophy, moderate to severe arteriosclerosis, and tertiary syphilis, and to this was added the postmortem diagnosis of rupture of the left cardiac ventricle.

Encephalography in Epilepsy.—An experience with ten cases of epilepsy has convinced Woods that air injection into the cavities of the brain and subarachnoid spaces by the spinal method without general or local anesthesia is a safe procedure in epileptic persons. The majority showed either cortical atrophy with abnormal convolutions or hydrocephalus or both. In advanced cases there is definite evidence of a pathologic condition of the brain. Air injected is slowly absorbed; in one case it was demonstrable on the ninth day.

Causative Factors of Dementia Praecox.—Lazell and Prince are convinced that the blood of patients suffering from dementia praecox contains a soluble substance which is lethal to embryonic cells. Experiments so far completed strongly suggest that this substance is of endocrine origin.

Wisconsin Medical Journal, Madison

28: 1-42 (Jan.) 1929

Lobar Pneumonia: Specific Etiology and Therapy. F. C. McLean, Chicago.—p. 1.
Tropical Diseases Frequently Encountered in Temperate Zone. W. C. Rucker, New Orleans.—p. 5.
Sanatoriums: Do They Justify Their Existence? G. L. Bellis, Wauwatosa.—p. 9.
Cultivation of Human Tissue Outside Body. G. O. Gey, Milwaukee.—p. 11.
*Meningococcus Meningitis: Treatment by Combined Cisternal and Lumbar Medication. M. J. Fox, Milwaukee.—p. 13.
Diagnostic Problems. L. M. Warfield, Milwaukee.—p. 16.
Aortitis, Syphilitic, with Multiple Aneurysms: Case. L. H. Quinn and O. O. Meyer, Madison.—p. 18.
Nasal Septum Destruction: Chromium Plating. R. C. Thackeray, Racine.—p. 20.
Tuberculosis: Modes of Onset. A. A. Pleyte, Milwaukee.—p. 22.
Medical Economics. M. L. Harris, Chicago.—p. 35.
Collections and Collection Methods. J. G. Crownhart, Madison.—p. 37.

Meningococcus Meningitis.—In sixty-nine cases of meningococcus meningitis analyzed by Fox there were twelve deaths and fifty-seven recoveries, or a mortality rate of 17.4 per cent. The fulminating cases in which death occurred within a few hours after entrance are not included. There was a proportionate percentage of serum distribution as follows: 18.68 intravenous, 24.45 intramuscular, 23.64 intralumbar and 33.23 intracisternal. The average total amount of serum given was 190 cc. for each patient. The average number of spinal punctures was ten, with an average of five lumbar and five cisternal punctures for each patient. Serum was given on daily punctures until the spinal fluid became clear and smears were negative. After four or five punctures, when the symptoms were ameliorated, forty-eight hour intervals were resorted to. After three or four forty-eight hour intervals of treatment, a three-day rest period was maintained, followed by a drainage puncture, with smear, cell count and cultural growth. Now and then a patient would suffer a chill, fever and marked rigidity during the rest period of seventy-two hours. This situation demanded immediate intensive treatment, just as on entrance. Occasionally, a persistent cell count of 1,000 or more with a positive smear demanded a change of serum. No particular serum was used.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 1-52 (Jan. 5) 1929

Psychology of Conjoined Twins: Study of Monsterhood. J. Bland-Sutton.—p. 1.
Lymphadenoid Goiter and Its Clinical Significance. G. S. Williamson and I. H. Pearse.—p. 4.
Experimental Production of Lymphadenoid Goiter in Rats. R. McCarrison.—p. 5.
Prevention and Early Diagnosis of Acute Abdomen. Z. Cope.—p. 6.
*Treatment of Asthma by Roentgen Irradiation. S. G. Scott.—p. 9.
Contraction of Soft Palate After Tonsillectomy: Its Treatment. J. Dundas-Grant.—p. 11.
Treatment of Lupus Erythematosus with Gold Compounds. J. H. T. Davies.—p. 12.
Dick Test in Scarlet Fever. W. Brown.—p. 13.
Laceration of Anterior Wall of Female Urethra and Its Repair. W. Lee.—p. 14.
Surgical Treatment of Pulmonary Tuberculosis. B. Hudson.—p. 15.
A Normal Ventriculogram. H. M. Grey.—p. 15.
Rapid Recovery from Pleuropneumonia. S. M. Wells.—p. 15.
Flexner Dysentery in Two Day Old Child. J. C. Kerrin and J. M. Gill.—p. 16.
Twin Abortion from Uterus Didelphys. R. T. Bannister.—p. 16.
Lipoma of Chest (Supraclavicular Region). R. L. Paterson.—p. 16.
Case of Laryngeal Diphtheria: Membrane on Vocal Chord. H. M. Wharry.—p. 16.

Treatment of Asthma by Radiation.—The average dose of roentgen ray employed by Scott for an adult with asthma is 15 X per 3 mm. of aluminum on the back and the front of the trunk. The giving of this dose, with a 25 cm. spark gap (points) and 8 mm. through the tube, takes on the average five minutes. In severe cases this dose is given twice a week for four doses, followed by a fortnight's rest, and then two doses laterally once a week. In milder cases the dose is given once a week for four doses, followed by two weeks' rest, and then two doses laterally once weekly. An occasional dose may be necessary after this course. Each case, however, must be treated on its merits to a certain degree, and the treatment modified accordingly. One hundred and twenty-one cases have been treated during the last two and a half years. Although the number is small, it includes all types—that is, unselected cases—and is sufficient to indicate that the treatment is of considerable therapeutic value. A good result was obtained in eighty-nine cases; some result in seventeen, and no result in fifteen. Radiation sickness or nausea was observed to a very slight degree in most cases, but did not bear any relation to the results. Two patients, however, proved very susceptible to the reaction, and eventually stated that they preferred the complaint to the cure. In many cases looseness of the bowels, amounting even to diarrhea, occurred during the course. A noticeable result in quite a number of patients was a definite increase in weight. Patients often state that they feel considerably better in their general health, and that they are mentally brighter. One patient lost her sense of smell with the onset of asthma three years ago. This returned after the first dose of roentgen irradiation, but for a week everything seemed to have a noxious odor, becoming normal at the end of that time. A few, subject to bronchitis as well as to asthma, developed what appeared to be an acute attack of bronchitis soon after treatment had been started. Several patients who had been treated for nasal catarrh unsuccessfully stated that this had disappeared with the attacks of asthma after radiation. There are a few patients who respond well at first but have a recurrence of the asthma, which is again benefited by further irradiation but is followed by yet another attack. In such cases further investigation for asthma "triggers," such as nasal polypi and sinusitis, did not give any clue to the cause of these recurrent attacks.

Lancet, London

1: 59-112 (Jan. 12) 1929

Pitfalls in Diagnosis of Pulmonary Tuberculosis. S. V. Pearson.—p. 59.
Peroral Endoscopy. V. E. Negus.—p. 60.
*Urine Proteins in Nephrosis, Pregnancy and Myelomatosis. L. F. Hewitt.—p. 66.
*Mechanism of Stokes-Adams Syndrome. H. L. Heimann.—p. 68.
Quiescence of Irradiated Tumor Cells. H. Chambers and S. Russ.—p. 71.
Traumatic Rupture of Spleen. J. D. Dhruv, Bombay.—p. 72.
Actinomycosis of Appendix. F. M. G. Sinclair and S. C. Dyke.—p. 73.

Urine Proteins in Nephrosis, Pregnancy and Myelomatosis.—In the cases studied by Hewitt no difference could be detected between serum albumin and urinary albumin excreted in nephrosis, the albuminuria of pregnancy and eclampsia. In these cases, therefore, it is probable that serum albumin leaks through the kidney unchanged. Passage of large quantities of Bence-Jones proteins through the kidney for long periods does not produce progressive kidney injury, and does not appear to cause leakage of serum albumins. It is probable, therefore, that the passage of foreign proteins through the kidney does not cause leakage of serum albumin. Bence-Jones proteins differ in properties and are not all soluble in boiling solution. The protein appears to be present in the serum but not in the cerebrospinal fluid. The albumin and globulin content of the blood and cerebrospinal fluid are not abnormal in myelomatosis.

Mechanism of Stokes-Adams Syndrome.—Heimann advances the hypothesis that in a certain group of cases exhibiting the Stokes-Adams syndrome the underlying cause is an acute myocarditis and the precipitating cause is a vasoconstriction of the coronary arteries, depending on the action of the autonomic nervous system. The same factors may also be at work in those cases which exhibit occasional attacks over a period of years, if the inflammatory myocardial lesion exhibits acute exacerbations at various intervals.

Journal de Médecine de Lyon, Lyons

9: 683-715 (Dec. 5) 1928

Relationship Between Chemical Function and Physiologic Properties of Organic Compounds. L. Hugounenq and L. Velluz.—p. 683.
*Etiology of Fatal Intracranial Hemorrhages of the New-Born. J. Voron and H. Pigeaud.—p. 689.
*Paroxysms of Hypertension and Pain in Aortitis. A. Dumas.—p. 699.
Effect of Sunshine and of Seasons on Infectious Diseases. P. Woringer.—p. 707.

Hereditary Disease, Especially Syphilis, as Cause of Fatal Intracranial Hemorrhages of the New-Born.—Voron and Pigeaud report thirteen cases of fatal intracranial hemorrhages in new-born infants. In ten cases the hemorrhage was due to an intoxication or an acute infection or syphilis, and in only three cases could traumatism be considered as an etiologic factor. They think that traumatism is only a secondary factor in the etiology of these hemorrhages, the primary cause being some hereditary disease, especially heredosyphilis.

Paroxysms of Hypertension and Pain in the Course of Aortitis.—Dumas reports three cases of abdominal aortitis and one case of thoracic aortitis which showed an almost identical symptom complex of cramps in the extremities, abdominal and thoracic pains and severe cephalalgia, with vomiting and diarrhea in the abdominal type of attacks, and dyspnea, cardiac pains, palpitation and cyanosis in the cardiopulmonary type. Both types are accompanied by a sudden increase in the blood pressure and are followed by some degree of prostration and sometimes by death. The type of the paroxysms does not depend on the localization of the aortic lesions. This syndrome may be observed not only in the course of aortitis but also in some cases of suprarenal tumor, arterial hypertension or abnormal excitability of the sympathetic nervous system. In all cases, however, it is due to functional vasoconstriction in some part of the circulatory system. If the heart is unable to respond adequately to the suddenly increased arterial tension, it dilates, and hypotension with symptoms of cardiac weakness may take the place of the hypertension.

Journal d'Urologie Médicale et Chirurgicale, Paris

26: 289-408 (Oct.) 1928

*Recurrent Renal Calculi. P. Cifuentes.—p. 289.
Pathogenesis of Prostatic Dysuria. N. Serrallach and F. Serrallach.—p. 305.
Mobilization of Ureteral Calculi. A. G. Casariego.—p. 331.
Anuria in Congenital Absence of Left Kidney. G. Ceccarelli.—p. 334.

Recurrent Renal Calculi.—Cifuentes thinks that the two principal factors involved in the pathogenesis of postoperative recurrent renal calculi are infection and retention of urine, the latter being due to ureteral strictures or postoperative displacements of the kidney. The size and the form of the calculi are

secondary factors. As prophylactic measures, he recommends nephrotomy with drainage of the kidney and postoperative irrigation of the renal pelvis.

Presse Médicale, Paris

36: 1609-1624 (Dec. 19) 1928

Physiologic Mechanism of Polyuria in Diabetes Insipidus. M. Labbé, P. L. Violle and Gilbert-Dreyfus.—p. 1609.
*Hyperacute Gangrene of Female External Genitalia. E. Bodin.—p. 1611.
Immunity as a Defensive Reaction. S. Métalnikov.—p. 1613.
Bacterioscopic Diagnosis of Leprosy. M. Leger.—p. 1615.

Hyperacute Gangrene of Female External Genitalia.—Bodin reports a case of gangrene of the external genitalia in a healthy woman, aged 18. It started suddenly as a papule on the right labium majus and in a few days typical moist gangrenous lesions had spread over the lower two thirds of both labia and from 4 to 5 cm. laterally on the thighs and backward beyond the anus. The general condition was bad, with the temperature up to 40 C. (104 F.), a small rapid pulse, cephalalgia and insomnia. The results of urinalysis, the Wassermann test and a general physical examination were negative. On bacteriologic examination, many different kinds of bacteria were found, with predominance of Vincent's spirilla, fusiform bacilli and streptococci. The patient was completely cured in three months with local antiseptic dressings and general tonic treatment.

Revue de Chirurgie, Paris

46: 429-475, 1928

Treatment of Hemorrhage in Gastroduodenal Ulcer. X. Delore and J. de Girardier.—p. 429.
*Exposure of Humerus from Inner Side of Arm. A. Parcelier and A. Chenut.—p. 454.
Use of Leeches in Treatment of Phlebitis. J. Chavannaz and J. Magnant.—p. 461.

Exposure of Humerus from Inner Side of Arm.—To avoid operative injury of the radial nerve, Parcelier and Chenut propose a new technic for exposing the lower two thirds of the humerus, which is especially valuable in compound fractures. The patient is placed on his back with his arm in supination and at a right angle to the body. The surgeon stands on the inner side and the assistant on the outer side of the arm. The incision starts from the axilla, immediately behind the lower edge of the pectoralis major, follows the inner edge of the biceps downward to the middle of the arm, and from there passes slightly behind the epitrochlea. The superficial vessels and nerves are retracted and the sheath of the biceps is incised; the muscle and the deep vessels and nerves under it are then displaced outward, exposing the intermuscular septum. Immediately behind this septum the sheath of the triceps is incised, the ulnar nerve and artery are exposed, and the internal head of the triceps is separated from the internal intermuscular septum. Thus, the humerus may be exposed widely both anteriorly and posteriorly, and downward as far as the epiphysis. The field is limited in the upper part by the brachial artery and in the lower part by the joint. The operation is not bloody, and the closure is easily made by suturing the inner edge of the intermuscular septum to the sheath of the biceps and the triceps, and then suturing the skin.

Revue Française de Gynécologie et d'Obst., Paris

23: 513-560 (Sept.) 1928

Torsion of Normal Adnexa Uteri. H. Paucot and A. Meurisse.—p. 513.
*Extirpation of Lumbo-Aortic and Superior Hypogastric Nerve Plexus in Neuralgia in Uterine Cancer. J. Jianu.—p. 518.
Venesection in Obstetrics. P. Balard.—p. 525.

Extirpation of Lumbo-Aortic and Superior Hypogastric Nerve Plexus in Treatment of Neuralgia in Uterine Cancer.—For the treatment of lumbar and pelvic neuralgia due to extension of or compression by malignant tumors, Jianu performs an extensive extirpation of the abdominal aortic and superior hypogastric nerve plexus, beginning at the renal plexus and going down to a point just above the uterosacral ligaments. This operation was combined sometimes with extirpation of the sacral and inferior lumbar part of the sympathetic ganglions and even with ligation of the internal iliac arteries. He always obtained immediate and lasting analgesia but no modification of the course of the disease.

Revue Française de Pédiatrie, Paris

4: 559-686 (Oct.) 1928

*Muscular Lesions in Syphilitic Osteopathies of Infants. M. Péhu and Clavel.—p. 559.
*Blood Serum Proteins of Infants. E. Lévy.—p. 576.
Food Mixtures for Infants. M. Michalowicz.—p. 607.
*Etiologic Relationship Between Herpes Zoster and Chickenpox. M. Giuffré.—p. 623.
Purulent Staphylococcal Meningitis in Children. M. Manicatide, M. Popovici-Lupa and C. Constantinesco.—p. 633.
Encephalitis in the Course of Pertussis. V. Mikulowski.—p. 646.

Muscular Lesions in Heredosyphilitic Osteopathies of Infants.—Péhu and Clavel call attention to the frequency of muscular lesions in the heredosyphilitic osteopathies of infants. They are the cause of certain postural changes and the limited movement in osteochondritis with separation of the epiphysis, as well as of certain forms of pseudoparalysis with minimal osteochondritis or metaphyseal gummas. Some forms of muscular hypertonia and local annular induration of muscles are closely related to ossifying periostitis. Microscopically these muscle lesions are of the nature of a parenchymatous and interstitial myositis due to syphilitic arteritis or to the extension of the osseous and periosteal inflammatory processes into the muscle.

Amount of Proteins in Blood Serum of Infants and Especially of Eczematous Infants.—Lévy studied the amount of blood serum proteins in twenty-nine noneczematous and eight eczematous infants. He found that the amount of blood serum proteins in normal infants varies, directly with the age, from 5 to 6 Gm. per hundred cubic centimeters of blood serum in the first month to 7.5 Gm. (which is the average amount in normal adults) by the end of the first year. In eight infants with eczema he observed a considerable degree (40 to 50 per cent) of hypoproteinemia, which increased with the duration of the eczema, and was due probably to some changes in the basal metabolism of the eczematous infants.

Etiologic Relationship Between Chickenpox and Herpes Zoster.—Giuffré reports two cases of chickenpox in one member of a family following at a short interval a herpes zoster in another member of the same family. He does not believe in the unitary theory of the origin of both viruses, but he does believe that the virus of chickenpox may produce a zosteriform eruption.

Revue Médicale de la Suisse Romande, Lausanne

48: 977-1040 (Nov. 25) 1928

Lumbago: Clinical Study. J. Veyrassat and F. Ody.—p. 977.
*Immediate Results in Fourteen Thoracoplasties in Pleuropulmonary Tuberculosis. Morin, Cardis and Picot.—p. 999.
Case of Splenomegaly with Complete Infarction of Spleen. M. Secrétan.—p. 1014.
*Acrocyanosis with Disturbances of Motility. J. A. Mathez.—p. 1022.
Colon Bacillus Pyemia. G. de Morsier and M. Gilbert.—p. 1024.

Immediate Results in Fourteen Thoracoplasties in Pleuropulmonary Tuberculosis.—Morin et al. operated on fourteen patients (four men and ten women) with chronic, open pulmonary tuberculosis with cavities. Four of these had some old inactive tuberculous lesions of the other lung. Thoracoplasty was performed only as a last resort in cases in which pneumothorax, phrenotomy and gold salts did not give any amelioration. In five cases they obtained complete cure, with disappearance of all clinical, bacteriologic and roentgenographic signs of tuberculosis. In seven cases there was a pronounced amelioration, but the tubercle bacilli did not disappear. Death occurred in only two cases: one, within three months, from pleuropulmonary perforation with empyema; the other, within six months, from an acute exacerbation of tuberculosis in the other lung.

Acrocyanosis with Disturbances of Motility.—Among 106 cretins examined by Mathez there were twenty-six who had acrocyanosis and flexion of the fingers. In one half of the cretins there was a more or less pronounced flexion of all the fingers, with the exception of the thumb; in the other half only the fourth and fifth fingers were flexed. The author thinks that this form of deformity of the hand, accompanied by acrocyanosis, is due to disturbances in the secretion of thyroidin.

Schweizerische medizinische Wochenschrift, Basel

58: 1225-1248 (Dec. 15) 1928

Contagiousness of Scarlet Fever. W. Tobler.—p. 1225.
Effect of Light on Carbohydrate Metabolism. A. Gigon and R. Boulenaz. —p. 1228.
*Mixed Form of Scrofula and Syphilis. R. Bané.—p. 1229.
Treatment of Raynaud's Disease. R. Bing. —p. 1235.

Mixed Syphilitic and Scrofulous Adenopathy (Scrofulate de Vérole).—Bané reports four cases of mixed syphilitic and scrofulous adenopathy under the name of "scrofulate de vérole," which he considers a pathologic entity and not merely the coincident occurrence of syphilis and scrofula in the same patient. He thinks that recently acquired syphilis may act in two ways in producing scrofulate de vérole: (1) either *Spirochaeta pallida* reactivates the tubercle bacillus preexisting in the lymph nodes or (2) the presence of *Spirochaeta pallida* in a node creates a locus minoris resistentiae, and the tubercle bacilli are secondarily transported into the node by the hematogenic route. There were the same symptoms in all his cases, with a difference in degree only: sudden development of a cervical adenopathy, presenting a conglomerate of painless, elastic, freely movable glands, the size of a pigeon's egg and resembling multiple lymphomas (Hodgkin), or certain tuberculous adenopathies. The characteristic features are: (1) a positive Wassermann reaction; (2) the presence of *Spirochaeta pallida* in the lesions; (3) the absence of the tubercle bacillus but positive results on guinea-pig inoculation with material obtained by puncture of the lesions, and (4) the clinical evolution of this adenopathy under antisyphilitic treatment. At the same time that the Wassermann reaction becomes positive, there is either a rapid spread to other glands or a softening and breaking down of some of them, the adenopathy assuming the aspect of a scrofulous lymphoma. The author thinks that because the arsenical compounds have a tendency to aggravate the scrofulate de vérole in reactivating the tuberculous element of this disease, they should be replaced by bismuth compounds, except possibly in recent cases of syphilis.

Pediatria, Naples

36: 1137-1192 (Nov. 1) 1928

*Researches on Influence of Irradiated Air on Glycoregulatory Apparatus in Children. P. Gorini.—p. 1137.
Malarial Infection in City and in Province of Palermo from 1921-1925. E. M. Mondini.—p. 1149.
Comparative Test of Vaccinotherapy and Stomotherapy in Pertussis. G. Roi.—p. 1158.

Influence of Irradiated Air on the Glycoregulatory Apparatus in Children.—From his researches Gorini draws these conclusions: Direct or indirect inhalations of air irradiated with small doses of ultraviolet rays determine a greater activity of the glycoregulatory apparatus, while doses of greater intensity produce a certain amount of insufficiency. From the nature of the glycemic curve (retardation and acceleration of the initial speed, according to the dose of ultraviolet rays applied), it is logical to conclude that the glycoregulatory apparatus is affected immediately. The inhalations act on the glycoregulatory apparatus in substantially the same manner as do irradiations. Inhalations and irradiations applied simultaneously exert a manifestly greater effect.

Riforma Medica, Naples

44: 1480-1509 (Nov. 12) 1928

*Primary Thrombosis of Pulmonary Artery Resulting in Retrograde Embolism into Renal Veins. E. Samek.—p. 1481.
*Neutralization of Toxin of Dysentery by Means of Cholesterol. M. Mazzeo.—p. 1487.

Primary Thrombosis of Pulmonary Artery Resulting in Retrograde Embolism Into Renal Veins.—Samek reports this rare case, as it throws light on a particular pathogenic mechanism and explains the obscure symptomatology: In the right lung of a woman, aged 63, there developed, simultaneously with a pleuritic inflammatory process of probably influenzal origin, a primary thrombotic process which extended from the deep-lying branches of the pulmonary artery on the right to the main trunk of that artery—the hilum, where the thrombotic process remained. From the lumen of the vessel at this point there developed a large thrombotic mass with a curved surface. The gradual progression of the thrombotic process, owing to the perfect integrity of the trunk of the left pulmonary artery and its deep-lying branches, was consistent with life, and the thrombotic mass could thus become progressively organized in the deep-lying branches, while the slow and incomplete process of organization where the thrombotic mass ended in the main trunk of the right pulmonary artery permitted the histolytic softening of its central portion, with successive detachment of the formed granular mass, caused by the increase of pressure brought about by the exertions of the patient. This resulted in the dissemination in the pulmonary branch of the opposite side of many small thrombotic masses, which pushed into the deeper-lying tissues and became the point of departure of diffuse thrombotic formations that soon proved fatal in the small and medium sized branches. In addition, there was the possibly unique, or at least exceedingly rare, occurrence of a retrograde embolism of thrombotic origin in the parenchymal veins of the left kidney.

Neutralization of the Toxin of Dysentery by Means of Cholesterol.—Mazzeo's experiments led him to conclude that a solution of cholesterol in ether, if brought in contact with the toxin of dysentery, will cause the neutralization of that toxin. In his first series of experiments he injected varying doses of dysenteric toxin into young rabbits, to which, for ten days in succession, cholesterol had been administered, and in the second series he inoculated a mixture of an ethereal solution of cholesterol and the toxin of dysentery. It is not easy to say how the neutralization is brought about, but what seems to be evident is that it is not a mechanism similar to that of antitoxins, for the number of lethal doses neutralized is relatively low. A similar neutralization, though less intense, is brought about also in animals to which cholesterol is administered in their food.

Semana Médica, Buenos Aires

35: 1629-1704 (Dec. 13) 1928

Experimental Leprosy: Cultures and Inoculations. N. V. Greco. —p. 1629.
Treatment of Metritis. L. G. Gret.—p. 1642.
Conjugate Movements of Eyes. R. Argañaraz and E. Adrogué. —p. 1647.
Lipofibromyxoma of Spermatic Cord. O. F. Mazzini.—p. 1649.
*Treatment of Purulent Pleurisy in Children. R. Cabrera and A. Segers. —p. 1654.
Improvement of Operation for Cataract. A. J. Manes.—p. 1663.
*Posttyphoid Suppurative Splenitis. A. Althabe and G. di Paola. —p. 1666.
*Malignant Embryonal Adenosarcoma of Kidney. L. Stabile de Nucci. —p. 1668.

Treatment of Purulent Pleurisy in Children.—Cabrera and Segers believe that purulent pleurisy occurs frequently in children; the younger the child, the more favorable is the prognosis. When the quantity of pus is moderate and the general condition of the child is good, expectant treatment is to be preferred. When there is much exudate, and the child's condition is good, simple puncture is indicated. When the child's condition is bad and the exudate is very profuse, pleurotomy, either simple or combined with rib resection, is indicated. Attention is called to the desirability of waiting until the pus becomes less virulent and until it becomes well delimited by adhesions before operating in order to avoid complications.

Posttyphoid Suppurative Splenitis.—A woman, aged 35, had had a suppurative splenitis of typhoid origin; when she recovered from the typhoid she was emaciated and complained of pain in the left hypochondrium. On examination Althabe and di Paola found a tumor in this region. Palpation caused intense pain. At operation, the spleen was found to be hypertrophied and adherent to the omentum; it was bluish gray. On puncture a purulent fluid was evacuated. A drain was left in situ. The patient recovered.

Malignant Embryonal Adenosarcoma of the Kidney of an Infant.—Stabile de Nucci's patient, an infant aged 12 months, had had hematuria for twenty-five days. Examination revealed a small hard mass in the left side of the abdomen, resembling an enlarged spleen, but the spleen was normal in size and position. The tuberculin and hydatid tests were negative. At operation a tumor of the left kidney, the size of a fetal head, was found. The author intended to remove the kidney with the tumor, but the child died suddenly just as

the renal pedicle was being ligated. Microscopic examination showed an adenoma of the kidney of embryonic type, which in some places resembled a sarcoma.

Archiv für Psychiatrie und Nervenkrankheiten, Berlin

83: 605-814 (Nov. 26) 1928

Use of Gildemeister's Elastometer in Diagnosis of Nervous Disturbances. E. Jacobi.—p. 605.
Diagnostic Significance of Glycorrhachia in Nervous Diseases. A. E. Kulkow and M. E. Tarnopolskaja.—p. 672.
*Prevention of Cardiac Paralysis During Malarial Treatment. J. Schuster.—p. 695.
Colloidal Paraffin Reaction in Cerebrospinal Fluid. I. Leitner.—p. 698.
Schizophrenia of Long Duration. U. Fleck.—p. 705.
Harmful Effects of Alcoholism. M. Zagarus.—p. 761.
Psychosis Therapy by Shock and Desensitization with Anaphylactogens and Organ Extracts. J. Schuster.—p. 779.
Termination of Posterior Nerve Roots in Spinal Cord. J. Rasdolsky.—p. 795.
Recognition of Factors of Differentiation in Psychiatry. J. Kollarits.—p. 810.

Prevention of Cardiac Paralysis During Malarial Treatment of Paresis.—Schuster used malaria therapy in 319 cases of paresis and tabes; two of the patients died from vasotrophic shock. He therefore calls attention to the fact that the allergic condition of the patient must be determined before the treatment is begun, and he recommends particularly electrocardiographic examination of such patients before they are given malarial treatment.

Deutsche medizinische Wochenschrift, Berlin

54: 2049-2088 (Dec. 7) 1928

Scarlet Fever and Obstetrics. W. Benthin.—p. 2049.
Tonsils and Scarlet Fever Infections. J. Berberich and K. Jordanoff.—p. 2051.
*Menstruation and Bodily Exercise. H. Runge.—p. 2051.
Combination Therapy in Intermittent Claudication and Angina Pectoris. A. Müller-Deham.—p. 2052.
*Spleen Diet in Joint Tuberculosis. O. Fliegel.—p. 2053.
Effects of Inoculation of Llamas with Syphilis. J. Schereschewsky.—p. 2054.
Isamine Blue in Cancer Therapy. H. Baltzer.—p. 2054.
Improved Roentgenoscopy of Gallbladder. J. Geling.—p. 2055.
Subcutaneous Injection of Mixture of Phenobarbital and Scopolamine. E. Heinrici.—p. 2056.
Influence of Synthetic Thyroxin on Thyroid and Its Significance in Treatment of Obesity. R. F. Weiss.—p. 2056.
*Treatment of Malignant Tumors of Upper Air Passages with Surgical Diathermy. C. Hirsch.—p. 2057.
Massage and Suggestion. Gagzow.—p. 2058.
Treatment of Pruritus. C. Stern.—p. 2061.
Graduated Safety Curet with Adjustable Marking Bar. E. Guttmann.—p. 2064.

Effect of Bodily Exercise on Menstruation.—In order to determine to what extent bodily exercise influences the menses, Runge studied 100 students in gymnastic training schools. The training in these institutions is intensive, requiring about fifteen hours weekly. He found that in most cases gymnastics and sports exert a favorable influence not only on the general condition but also on the genital functions. In sixty-nine cases changes were not observed, regardless of whether or not the students were training. In eight cases, the menses decreased in intensity. Runge explains this as being due to the better circulation resulting from the exercise. In four instances the periods became more regular and in eleven cases the painfulness was reduced. Only in from 15 to 20 per cent of the cases did he observe bad effects. On the basis of these observations he concludes that it is not necessary to prohibit bodily exercise during the menstrual period. If the student is willing to continue the training, restrictions need not be made. Complications seldom arise, especially in the case of young girls, and if they occur, they are almost never of a serious nature. However, in the event of irregularity in the menses, or in married women with a history of previous pregnancies or abortions, permission for gymnastic exercise during menstruation should not be given without a gynecologic examination, and it is best for each person to receive individual attention.

Spleen Diet in Joint Tuberculosis.—Fliegel considers that a spleen diet is of great importance in the treatment of tuberculosis of the joints. He reports his observations in twenty cases, all of which were of a serious nature and showed complications (abscesses and fistulas). The orthopedic treatments were combined with the dietary measure. The spleen was given in comparatively small quantities, from 2 to 4 ounces daily. Calf spleen was served either ground up in soups or in the form of quickly fried collops. This treatment was continued for four weeks, then interrupted for about two weeks and resumed again. Most of the patients treated in this manner showed some improvement as early as the second week; the temperature went down, appetite and weight increased and the tuberculous abscesses and fistulas gradually healed. After several months, five cases were completely cured and all the rest, with only two exceptions, showed marked improvement. The author recommends this treatment, especially when the disease is complicated by purulent fistulas and abscesses.

Treatment of Malignant Tumors of the Upper Air Passages with Surgical Diathermy.—Hirsch points out that malignant tumors of the upper air passages formerly necessitated bloody operations, which frequently resulted in fatalities. He therefore advocates surgical diathermy as the best therapeutic method, not only because it is practically bloodless but also because the electrode can be employed in more critical and delicate manipulations than can the surgeon's knife. A local anesthetic should precede the treatment. Hirsch applied this therapy successfully for resection of the upper jaw and also for tumors of the nasopharynx. In cases of this nature an incision is very apt to cause excessive bleeding, and radium treatments should be avoided for the reason that they frequently cause abscesses and other complications in later years. Hirsch employed diathermy very effectively also for tumorous growths of the tonsils and of the pharynx and for malignant tumors of the external and the middle ear. Diseases of the larynx and of the esophagus, however, should not be treated in this manner, because in these organs edema and strictures frequently develop after diathermy.

Klinische Wochenschrift, Berlin

7: 2277-2324 (Nov. 25) 1928

Scarlet Fever Problem. U. Friedemann.—p. 2277.
*Peripheral Treatment of Patients with Heart Disease. H. Eppinger and K. Hinsberg.—p. 2284.
*Retinal Hemorrhages in Hypertonia. I. Lange and F. Lange.—p. 2286.
Iodine Metabolism in Thyrotoxicosis. J. Holst, G. Lunde, K. Closs and O. C. Pedersen.—p. 2287.
Graphic Registration of Pulsatory Movements of Eyeball. W. Wegner.—p. 2290.
Change in Colloid Structure of Blood During Menstruation. H. Eufinger.—p. 2291.
Experiences with Filter Apparatus in Anaphylaxis. E. Fränkkel and E. Levy.—p. 2292.
*New Method for Treatment of Exophthalmic Goiter. H. Lax.—p. 2295.
Pharmacologic Basis of Rational Iron Therapy. A. Bickel and Baudisch.—p. 2297.
Carbon Dioxide Elimination Through the Skin. G. Endres.—p. 2298.
Specific Dynamic Action and Visceral Nervous System. S. Ederer and J. Wallerstein.—p. 2298.
Actinomycosis in Accident Insurance: Case. Reckzeh.—p. 2299.
Therapeutic Application of Roentgen Rays in Nervous and Mental Disorders. H. D. von Witzleben.—p. 2300.
Occupational Instruction and Possibilities of Support for the Blind and People with Diminished Vision. W. Feilchenfeld.—p. 2304.
Physiology of Salivary Secretion. R. Weber.—p. 2306.
Method for Determining Cholesterol Content of Blood. S. M. Neuschlosz.—p. 2323.

Peripheral Treatment of Patients with Heart Disease.—Eppinger and Hinsberg assert that the circulation is dependent not only on the activity of the heart but also on the function of the peripheral vessels. They conclude that it ought to be possible to treat disturbances in the circulation not only by influencing the heart action but also by stimulating the peripheral circulation. They report their experiences in three cases. With the use of digitalis preparations they obtained slight improvement. After they had discontinued the use of medicaments for some time, they commenced their new treatment. Work is the best means of stimulating circulation in the muscle. The patients had to exercise on a bicycle energometer for two minutes every day. These treatments were continued for periods of from three to five weeks. As a result, the patients showed not only a marked improvement in their general state of health but especially a favorable change in metabolism. However, the authors point out that these treatments should not be applied in the severe stages of heart disease. They should be resorted to only in the event that the use of medicaments leaves the patient in a somewhat weakened condition. This method would eliminate the necessity of the continued use

of digitalis, which is disadvantageous as it leads to a drug habit and often fails in effect in case an exacerbation sets in.

Retinal Hemorrhages in Hypertonia and Arteriosclerosis.—The Langes examined sixty patients with retinal hemorrhages. In fifty-seven they observed high blood pressure. Of this number, forty-two patients showed also symptoms of arteriosclerosis. Among the sixty patients there was not a single one with simple arteriosclerosis. For purposes of control, the authors examined some patients with arteriosclerosis without other complications but never observed retinal hemorrhages. They therefore conclude that retinal hemorrhages usually indicate high blood pressure.

High Altitudes in Treatment of Exophthalmic Goiter.—Lax points out that sojourn in high altitudes is considered of much therapeutic value in cases of exophthalmic goiter. On the assumption that the lowering of the atmospheric pressure is the decisive factor, Lax experimented with forty patients. For four hours each day the patients were placed in a room in which the atmospheric pressure corresponded to the pressure at an elevation of 3,280 feet. The room accommodated two patients. The ventilation was so regulated that the lowered atmospheric pressure was maintained. In order to eliminate psychic influences, the patients first were given a pseudotreatment. During this time no changes were observed. Gradually, the atmospheric pressure was lowered. The treatment was continued for from three to four weeks. As a result, twenty-nine out of forty patients showed a marked improvement. Fourteen patients had no subsequent complaints whatever, even nine months after the treatments. The author points out that the number of hours which the patients spent in the lowered pressure is equivalent to about three and one-half days. However, a sojourn of three and one-half days in the mountains would not improve the condition of a patient to the same degree as under the influence of Lax's method. To explain this phenomenon he says that the frequent change between high and low pressure is more effective than the uninterrupted influence of a reduced atmospheric pressure.

7: 2373-2420 (Dec. 9) 1928

Relationship Between Emphysema and Circulation. E. Schott.—p. 2373.
Influence of Thyroid on Nutrition: Dosage of Thyroxin. W. Kornfeld and E. Nobel.—p. 2377.
Relativeness of Toxicity. B. Kisch.—p. 2380.
Excretion of Ingested Iodine by Gastric Glands. L. Heilmeyer and A. Sturm.—p. 2381.
Roentgen Burns Due to Accumulation and Combination. F. M. Groedel and H. Lossen.—p. 2383.
Bactericidal Power of Cerebrospinal Fluid and Noninflammatory Abdominal and Thoracic Effusions. P. von Gara.—p. 2386.
Heart-Beat of Athletes. F. H. Lorentz.—p. 2388.
*Intestinal Injuries Caused by Soap-Suds Enemas. H. Runge and H. Hartmann.—p. 2389.

Intestinal Injuries Caused by Soap-Suds Enemas.—Runge and Hartmann administered 0.5 per cent soap-suds enemas to sixteen rabbits and twenty men. The rabbits were killed in from one-half to three days after the administration of the enema, and the rectal mucosa was examined macroscopically and microscopically. Ulcerations and diffuse ecchymosis were found in all cases. Before the administration of the enema to men, the intestines and stools were examined carefully, especially for the presence of occult blood, and a meatless diet was prescribed for three days preceding the experiment. In one third of the men, intestinal hemorrhages were observed within three days after the administration of the enema. The toxicity of the soap-suds enema is due to the toxicity of the soap molecule itself and not to the free alkalis that may be present in the soap solution, because the ulcerations were produced even with neutral soap solutions. The authors advise limitation of the use of the soap-suds enemas.

Monatsschrift für Kinderheilkunde, Leipzig

40: 385-480 (Nov.) 1928

Skin and Infectious Diseases in Children. C. Leiner.—p. 385.
Psychology of Childhood: Rôle of Habit and Instinct in Education. J. S. Galant.—p. 407.
*Effect of Pituitary Preparations in Diabetes Insipidus in Children. E. Weiss.—p. 428.
*Congenital Lymphangiectatic Edema in Twins. H. Maslowski.—p. 436.
Katalase Content of Blood in Healthy and Sick Infants. M. Fukuyama.—p. 441.
Peroral Immunization Against Diphtheria. M. Klotz.—p. 444.

Effect of Pituitary Preparations in Diabetes Insipidus in Children.—Studies of reports on pituitary preparations and on their effect in diabetes insipidus lead Weiss to the conclusion that when these preparations are administered by mouth or by rectum they have only a slight effect or none at all, whereas the effect following their subcutaneous injection varies with the preparation used. He found that the reaction of children to treatment with pituitary extracts is different from that of adults.

Congenital Lymphangiectatic Edema in Twins.—Maslowski observed a relationship between nephritis of pregnancy and the appearance of edema in the children. In some cases, nephritis of pregnancy is considered to have an etiologic significance in generalized fetal edema. As the cases reported were congenital edemas which in one of the twins persisted for several months with almost unchanged intensity, although the child was not nursed by its mother, the author believes that she can exclude a toxic cause connected with the kidney disease of the mother and she thinks that in these cases, too, the edemas are caused by congenital changes in the lymphatic system.

40: 481-576 (Nov.) 1928

Measures for Combating Diphtheria in Institutions. G. Knoller.—p. 481.
*Chickenpox Prophylaxis. L. O. Finkelstein, R. A. Wilfand and E. N. Chochol.—p. 489.
Development of Premature Infants. J. Franke and E. Singer.—p. 496.
Pathogenesis of Scarlet Fever. F. von Szontagh.—p. 505.
Physiologic Craniotabes. M. Klotz.—p. 518.
Method (Russnyàk) for Measuring Albumin Content of Plasma. J. C. Schippers.—p. 521.

Chickenpox Prophylaxis.—Finkelstein et al. vaccinated forty-three infants, varying in age from 2 to 8 months, against chickenpox. On the basis of their results, they concluded that percutaneous inoculation with the contents of a clear chickenpox vesicle produces, in positive cases, either a local reaction in the form of a single vesicle at the site of vaccination or a benign generalized chickenpox eruption on the body—in rare cases, typical chickenpox. The positive result of the vaccination, even if the reaction is local, protects the child against chickenpox. It is not advisable to vaccinate children who are not threatened by chickenpox, owing to the possibility of producing this condition by the vaccination.

Wiener klinische Wochenschrift, Vienna

41: 1705-1736 (Dec. 13) 1928

Present Status of Sympathetic Nervous System. E. Leschke.—p. 1705.
Bacterium Abortus Infection in Man. G. Spengler.—p. 1709.
*Adenomyosis Externa of Abdominal Skin. K. Frachtman.—p. 1712.
Serotherapy in Surgery. H. Steindl.—p. 1717.
Advantages of Ambulatory and Institutional Treatment of Pneumothorax. H. Poindecker.—p. 1721.
Popular Methods of Physical Therapy in Internal Diseases. J. Weiss.—p. 1722.

External Adenomyosis of Abdominal Skin Between Umbilicus and Symphysis.—Frachtman's patient, a religieuse, aged 41, in whom previous laparotomy had not been performed, had two tumors removed from the uterus. Microscopic examination showed that they were of a fibrous structure. The operation also disclosed an elastic, subcutaneous tumor the size of a walnut, about three fingerbreadths below the umbilicus. It proved to be a heterotopic proliferation. In structure it was similar to the uterine glands. The author points out that tumorous growths of this type have been found in women on the genital organs, the peritoneal lining of the small pelvis, the rectum, the ileocecal valve, the omentum, the umbilicus, and in laparotomy scars. If found on the genital organs, they are spoken of as "adenomyosis interna," and if found on other organs they are called "adenomyosis externa." Occasionally the two types occur simultaneously. In the case reported, however, the tumorous growths of the uterus were of a different nature. This fact, as well as the unusual location of the growths between the umbilicus and the symphysis, gives this case a unique character. The etiology of adenomyosis was for a long time not quite clear, until in later years many authorities pointed to a possible correlation with the female genitalia. The theory is that during menstruation, cells of the endometrium pass by way of the lymphatic vessels into various organs and there originate tumorous growths.

Zeitschrift f. d. ges. Neurol. u. Psychiatrie, Berlin

117: 1-178 (Nov. 12) 1928

*Trauma and Parkinsonism. A. Kluge.—p. 1.
Psychology of Epileptic Patient. I. Grossmann.—p. 12.
Fetishism and Mutilation Fantasm. J. Meinertz.—p. 19.
Tumor of Infundibulum of Pituitary Body. K. M. Walthard.—p. 49.
Disturbances of Cerebrospinal Fluid System in Cranial Traumas. P. Bielschowsky.—p. 55.
Myalgic Headache Causing Nervous Disturbances. G. Peritz.—p. 118.
Albumin Relation and Colloid Reactions in Cerebrospinal Fluid. V. Kafka and K. Samson.—p. 128.
Penetration of Intravenously Injected Trypan Blue into Experimentally Injured Cerebrum. W. Mendel.—p. 148.
Changes in Brain Following Great Excitement. A. von Braunmühl.—p. 163.
*New Method of Staining Spirochaeta Pallida in Frozen Sections of Central Nervous System. R. Kanzler.—p. 171.
Kanzler's New Staining Method Applied in General Pathology. H. Kufs.—p. 175.

Trauma and Parkinsonism.—Kluge investigated the relationship between trauma and parkinsonism and came to the conclusion that accidents cannot be regarded as a cause, in whole or in part, of parkinsonism. He reports several cases and tries to prove that the disease was already chronic in the patient previous to the injury, which can by no means influence the course of this disease even if it may modify or accentuate the symptoms.

Staining Spirochaeta Pallida in Frozen Sections of Central Nervous System.—Kanzler has modified the method of Jahnel as follows: The section is immersed for thirty minutes in a solution of ammonium bromide and formaldehyde. It is then washed and put in pyridine for fifteen minutes, washed again and immersed for ten minutes in a 0.5 per cent uramin solution. After being washed again, the sections are immersed for one hour in a 1.5 per cent silver nitrate solution at from 37 to 40 C., quickly heated in the silver solution over the flame, washed in distilled water, dipped and moved about for from two to four seconds in a solution of silver nitrate, soda and ammonia. Then, without being washed, they are placed for from three to five seconds in a 5 per cent formaldehyde solution. As soon as they have taken on a yellow or yellowish brown color, they are placed in distilled water, which is changed several times, and consecutively in alcohol, beechwood creosote-phenol-xylene, and Canada balsam. The spirochetes are stained black, whereas the nervous tissue remains unstained.

Zeitschrift für Tuberkulose, Leipzig

52: 273-368 (Nov.) 1928

*Influence of Menstruation on Temperature Curve of Tuberculous Women. A. Beekmann.—p. 273.
Relationship Between Pulmonary Anthracosis and Tuberculosis. H. Schulte-Tigges.—p. 290.
Successive Anatomic Forms in Evolution of Chronic Pulmonary Tuberculosis. N. Westenrijk.—p. 295.
Serum Globulin Precipitation Test (Costa) and Diagnosis of Tuberculosis in Children. K. Nüssel and H. Helbach.—p. 301.
Antituberculosis Measures in German High Schools. B. Kattentidt.—p. 309.

Influence of Menstruation on Temperature Curve of Tuberculous Women.—Beekmann studied the temperature curve of 300 tuberculous women and observed a premenstrual rise in 76 per cent. A slight rise up to 36.7 C. (98 F.) was of no importance. A rise over 36.7 C. with a maximum at the end of the premenstrual period was observed in cases of active tuberculosis. There was no premenstrual rise of temperature in the febrile or subfebrile cases of active, progressive tuberculosis. The fever during and after menstruation was observed only in cases of progressive tuberculosis, with a poor prognosis. He thinks that the temperature curve is regulated by two factors, the pathologic process and the glands of internal secretion, and that it is of importance not only in the diagnosis and prognosis but also in the treatment of tuberculosis.

Zentralblatt für Gynäkologie, Leipzig

52: 3121-3184 (Dec. 8) 1928

*Treatment of Disturbances of Fetal Heart in Utero. H. Siedentopf.—p. 3122.
*Treatment of Febrile Puerperal Patients with Intravenous Injection of Alcohol. A. Bär.—p. 3133.
Rôle of Occupation in Etiology of Gynecologic Diseases. A. von Fekete.—p. 3138.
Use of Solution of Secondary Butylbrompropenylbarbituric Acid in Obstetric Cases. E. von Konrád.—p. 3142.
Uterine Implantation of Fallopian Tubes After Resection of Occluded Portion. H. Heuck.—p. 3145.
Primary Tumor of Spleen. P. Samson.—p. 3148.
Avoidance of Perineal Injury with Posterior Vaginal Speculum. H. Porges.—p. 3155.
Configuration and Asynclitism of Fetal Head in Breech Presentation. G. Schpoljanski.—p. 3157.

Treatment of Disturbances of Fetal Heart in Utero.—Siedentopf studied the effect of atropine and of amyl nitrite on the fetal heart sounds in normal pregnant women. In all cases the fetal heart sounds were counted for from five to ten minutes before the administration of the drug; 3 or 4 drops of amyl nitrite was then given by inhalation to each of eleven women. In a few seconds the maternal pulse was considerably accelerated, but it slowed down in from one to two minutes. Slight acceleration (eight to twelve beats a minute) of the fetal heart sounds was observed only in five of the eleven cases; it occurred from thirty to sixty seconds later than in the mother. One milligram of atropine was administered subcutaneously to each of seven pregnant women. In all cases the maternal pulse and the fetal heart sounds were accelerated about equally, on the average by twenty-two beats a minute. The action began in the mother in from ten to sixty minutes after the injection of the drug, and in the fetus from twenty to thirty minutes later. In two hours the pulse and the heart sounds were again normal. Because atropine does not act on the uterus but has a paralyzing action on the vagus, Siedentopf proposes to use it in cases of threatening fetal asphyxia, in which the induction of labor is contraindicated, and the danger of fetal asphyxia is not caused by intense uterine contractions. Atropine in those cases would combat the asphyxia by accelerating the fetal heart and thus increasing the amount of oxygen brought to the fetus.

Treatment of Febrile Puerperal Patients with Intravenous Injection of Alcohol.—Bär used intravenous injections of alcohol in the treatment of eight puerperal women who had chills and high temperature. Sixty-six centimeters of absolute alcohol in 200 cc. of physiologic solution of sodium chloride was injected intravenously every other day, when possible immediately after the chill. In all cases the temperature dropped either by crisis or by lysis, and the patient's general condition was ameliorated promptly and considerably.

52: 3185-3248 (Dec. 15) 1928

Roentgen Measurement of Pelvis of Pregnant Women. H. Martius.—p. 3186.
Area of "Terminal Plane" of Pelvis. E. Holzbach.—p. 3195.
Primary Puerperal Sinus Thrombosis. O. Mondré.—p. 3199.
Uterus with One Body, Two Cervices and Septate Vagina. B. Ottow.—p. 3204.
Treatment of Uterine Cancer in Private Practice. T. Micholitsch.—p. 3209.
Backache in Gynecology. K. Hense.—p. 3227.
*Complete Circular Elimination of Portio Vaginalis During Labor. G. Kleff.—p. 3229.
Treatment of Leukorrhea with Antivirus (Besredka). R. Köhler and H. Porges.—p. 3232.
Use of Secacornin During Cesarean Section. A. Schäfer.—p. 3234.

Complete Circular Elimination of Portio Vaginalis During Labor.—Kleff observed complete circular elimination of the portio vaginalis in a primipara, aged 37, after fifty-four and one-half hours of labor following premature rupture of the membranes. The labor ended spontaneously in fifteen minutes after the elimination of the thickened and crushed cervix. The puerperium passed without any complications, and when the patient was discharged, fifteen days after delivery, examination revealed a well contracted uterus, with marked ectropion of the cervical stump. Because the pelvis and the size and weight of the child were normal, and because of the absence of any instrumental intervention, the author thinks that this elimination of the cervix was due to the premature rupture of the membranes in the presence of a rigid external cervical orifice.

Bibliotek for Læger, Copenhagen

120: 667-709 (Nov.) 1928

*Death After Hypoglycemia. C. Holten.—p. 667.
*Glycolysis in Spinal Fluid. O. J. Nielsen.—p. 683.

Death After Hypoglycemia.—In Holten's patient, aged 63, with diabetic coma following omission of the usual dose of insulin, the injection of 40 units of insulin in two doses at five

hour intervals, with 20 additional units five hours later, was succeeded in five and one-half hours by hypoglycemic shock. After the administration of 130 Gm. of dextrose, 125 Gm. of oatmeal gruel with cane sugar, and 1 cc. of solution of epinephrine hydrochloride, the hypoglycemia changed to marked hyperglycemia. The symptoms, however, became aggravated, and death occurred more than twenty-four hours after the disappearance of the hypoglycemia. In the daily treatment of patients with an unstable blood sugar level, regular analysis of the blood sugar is advised, with insulin apportioned accordingly, and in cases of coma the author would now demand determination of the blood sugar at least every fourth hour, with the appropriate dosage of insulin given accordingly. When symptoms of hypoglycemia appear, dextrose should be given in large quantities as soon as possible. Epinephrine should certainly be used. The instances reported in the literature of death from hypoglycemia due to insulin are discussed.

Glycolysis in Spinal Fluid.—In Nielsen's study of specimens of thirty-seven spinal fluids (twelve normal) from twenty-two punctures, he found that glycolysis is not due to any enzymatic process but is produced by exogenic factors. Glycolysis began after from twenty-four hours to thirty-two days and became total with varying speed, in some cases being interrupted for an interval of from six to eight days. It was not absolutely dependent on the temperature; its start did not depend on the cells in the spinal fluid, and changes in the hydrogen ion concentration apparently did not affect its course. While the presence of staphylococci had no effect on glycolysis, the author believes that the growth of bacteria in secondary infections is a decisive factor in glycolysis. Puncture was made daily for eight days in a patient with tuberculous meningitis; on the first day the sugar concentration was 0.028, two days later, 0.048, and on the following days, 0.058, falling twelve hours before death to 0.034.

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71: 1101-1126 (Oct. 11) 1928

*Cyanide Poisoning from Shoe Polish. R. B. Larsen.—p. 1104.
Size of Surface of Glomerulus and Significance in Physiology of Kidney. P. B. Rehberg.—p. 1113.
*Treatment of Myxedema with Synthetic Thyroxin. S. A. Holbøll.—p. 1119.

Cyanide Poisoning from Shoe Polish.—Larsen says that his case, that of a girl, aged 16, who swallowed some Cinderella Silver Slipper Cream and died in thirty-five minutes, is of especial interest because of the evidence as to the quantity of cyanogen ion which caused death; 0.032 Gm. had been resorbed. The lethal dose of cyanogen ion is approximately 0.5 mg. per kilogram of body weight (Reid Hunt), in this case 0.025 Gm. He points out the dangers involved in the use of similar shoe cleaning preparations even when applied as intended.

Case of Myxedema Treated with Synthetic Thyroxin.—In Holbøll's case of typical myxedema, the basal metabolism at the beginning of the treatment was 60.1 per cent. Oral administration of synthetic thyroxin in a total daily dosage of 3 mg. was followed by complete return to normal after six or seven weeks. The author concludes that synthetic thyroxin administered by mouth is an adequate substitute for preparations from the thyroid gland. If further investigations confirm the fact that synthetic thyroxin must be used in larger doses than the glandular preparation, the question arises whether, in addition to the hormone thyroxin, there are in the thyroid gland substances which enhance the effect of the thyroxin in the organism.

Norsk Magasin for Lægevidenskapen, Oslo

89: 1189-1316 (Dec.) 1928

*Functional Albuminuria. O. Jervell.—p. 1189.
*Lymphomatous Angina and Glandular Fever. Y. Ustvedt.—p. 1213.
*Late Examination of Syphilitic Patients Not Given Antisyphilitic Treatment. E. Bruusgaard.—p. 1222.
Two Cases of Infection of Urinary Tract with Bacillus Morgan I. A. Jervell.—p. 1246.
*Periodic Incidence of Acute Hemorrhagic Nephritis. O. Rømcke.—p. 1252.
Investigations on Tuberculin. A. Strøm.—p. 1263.
Complement Fixation Reaction in Serum in Different Forms of Tuberculosis. T. Thjøtta and E. Gundersen.—p. 1282.

Functional Albuminuria.—Jervell found albuminuria in 9.9 per cent of 3,507 athletes, aged from 10 to 39, transitory albuminuria being present more often than orthostatic. Examination of trained athletes showed that functional albuminuria occurs readily in some persons and in others not at all, or only after very strenuous effort. It was noted most frequently at the beginning of a training period. Of 112 persons examined before and after a short sea bath, eighty-three had no albumin in the urine before or after, sixteen had albuminuria both before and after, and thirteen showed albuminuria only after. Fractional precipitation of albumin and globulin in the urine gave a relatively high globulin content. With a lactic acid content in the blood of more than 75 mg. per hundred cubic centimeters after physical exertion, there was always albumin in the urine.

Lymphomatous Angina.—Ustvedt says that among 110 cases of angina observed from September, 1926, to November, 1927, there were twelve cases of lymphocytic angina, five of these in adults, the oldest aged 24; among sixty-five cases of angina observed in 1928, no certain case was seen. While glandular fever (Pfeiffer) and lymphocytic fever may be the same disorder or due to the same virus, he prefers for the present to consider them as two separate disorders and would designate the latter lymphomatous angina, to indicate the two predominating symptoms. Lymphocytosis of the blood may persist for several months after recovery, as in the four cases reported. He believes that lymphomatous angina can often be diagnosed clinically without examination of the blood.

Late Examination of Syphilitic Patients Not Given Antisyphilitic Treatment.—Bruusgaard reports on 473 syphilitic patients, 309 examined from three to forty years after infection and 164 in whom the cause of death was known. Of the 309, 27.7 per cent were clinically without symptoms and had negative Wassermann reactions; 14.8 per cent were clinically without symptoms and had positive Wassermann reactions; 2.76 per cent had paresis; 1.27 per cent had tabes dorsalis, and of the 473, 14.12 per cent had diseases of the blood vessels. Grave complications occur even in the secondary stage, diseases of the eyes and ears being most common and most significant in prognosis, frequently indicating meningeal involvement. In the far more important late syphilitic disorders, diseases of the heart and blood vessels dominate both as to frequency and as to cause of death. It is clearly evident that the organism itself, in a considerable number of cases, has such marked powers of defense that it not only holds the infection in check but may wholly overcome it.

Periodic Incidence of Acute Hemorrhagic Nephritis.—Rømcke's material comprises 169 cases observed from January, 1918, to April, 1928. A marked increase in the number of cases of acute hemorrhagic nephritis was noted in 1927, with fifty-seven cases from August, 1927, to January, 1928, as against less than ten annually otherwise, except in the influenza years 1918 and 1919. Of the fifty-seven patients, 52.63 per cent had had angina preceding the nephritis; of the 100 from 1918 to 1927, 17 per cent. An almost epidemic occurrence of acute hemorrhagic nephritis, he says, was observed during the Civil War and the World War. Increased incidence is seen during epidemics of scarlet fever. While there was no certain evidence that the greater number of cases in 1927 was due to scarlet fever, he considers it not improbable. The fifty-seven cases do not differ from the others as to symptomatology or age of patients. Of the total 169 cases, 4.73 per cent were fatal; of the fifty-seven, 3.51 per cent.

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90: 1173-1200 (Dec. 20) 1928

Calmette-Guérin's Tuberculosis Vaccine. T. Madsen.—p. 1173.
Substitutes for Camphor. H. Baggesgaard-Rasmussen.—p. 1175.
*Successful Arterial Embolectomy. O. Keller.—p. 1179.
Intelligence Tests. H. O. Widenskov.—p. 1180.
Tropical Climate and Malaria in Congo. G. Jensen.—p. 1183.

Arterial Embolectomy with Successful Outcome.—Keller regards his case in a man, aged 66, as of especial interest because it demonstrates the possibility of good results following operation even on patients with very sclerotic vessels. He believes that the early treatment, one and one-half hours after the occurrence of the embolism, was a decisive factor in the result obtained.